

NEW YORK
BOTANICAL GARDEN.

ILLUSTRATIONS
OF
BRITISH MYCOLOGY.

ILLUSTRATIONS
OF
BRITISH MYCOLOGY,

CONTAINING
FIGURES AND DESCRIPTIONS

OF
THE FUNGUSES OF INTEREST AND NOVELTY INDIGENOUS
TO BRITAIN.

BY
MRS. T. J. HUSSEY.

Second Series.

“Though all that feeds on nether air,
Howe'er magnificent or fair,
Grows but to perish, and entrust
Its ruins to their kindred dust;
Yet by the Almighty's ever-during care
Her procreant vigils Nature keeps
Amid the unfathomable deeps;
And saves the peopled fields of earth
From dread of emptiness or dearth.”—WORDSWORTH: *'Vernal Ode.'*

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F. R. de

Bertr. & Nichols imp.

Agaricus cyathiformis. Bulliard

PLATE I.

AGARICUS CYATHIFORMIS, *Bulliard*.*Late Cup-shaped Agaric.*

Series LEUCOSPORUS.

Sub-genus CLITOCYBE.¹

Spec. Char. A. CYATHIFORMIS. Pileus often two inches and a half broad, sub-carnose, more or less infundibuliform, the margin reflexed; even, smooth, blackish umber, with sometimes a shade of red; of a moist unctuous appearance, but not the least viscid; pellucid when moist, nearly white when dry. Gills rather distant, cinereous, adnate when young, apparently but not truly decurrent, on account of the form of the pileus. Stem from two to three inches and a half long, half an inch thick at the base, attenuated upwards, tough, elastic, sub-fibrillose, at length hollow. A small variety occurs, not an inch broad, agreeing in colour, but the gills are almost ventricose and more distant, the stem more nearly equal, the margin more crisped. Both, when young, are convex, and not truly umbilicate; in the true form there is a minute umbo. The gills are not then the least decurrent. In *A. cyathiformis* the gills are sub-ascending, rounded behind; in the variety sub-ventricose, horizontal, and adnate with a tooth; in the one of a cinereous, in the other of an umber tint.

AGARICUS cyathiformis, *Bulliard, Fries, Berkeley, Greville.*———— sordidus, *Dickson, Bolton, Sowerby, Withering.*———— tardus, *Persoon.*———— cyathoides, *Bolton.**Hab.* Pastures and woods among grass; common.

There is some elegance of form in this *Agaric*, but the sombre colour does not recommend it, and, although not viscid, the surface gives the idea that it would stick to the fingers and soil them; it is not, like many truly ugly members of the tribe, possessed of virtues which more than counterbalance the lack of external show; but then it does not seduce under false colours; it will not distress your olfactories with the worst of odours, like the elegantly-garbed *Agaricus sulphureus*, nor burn the imprudent tongue in the torturing manner *A. torminosus* does. Inodorous, innocuous, insipid, insignificant if you please, it may be asked, why figure it? Because a large number of students are assisted better by a familiar common subject than by the scarce treasure, seen once in a life-time, and which research may never place before the eyes of more than a favoured few.

The specific description, borrowed from our constant companion and guide, the 'English Flora,'

¹ From κλίτος, a steep or declivity, and κίβη, a head, pointing to the shape of the pileus when young, in contradistinction to *Omphalia*, in which the pileus when young is umbilicate. Veil none. Pileus convex when young, not umbilicate; at length often depressed or infundibuliform. Gills unequal, juiceless, unchangeable, tough, variously fixed or free. Spores white.

embraces two varieties of *A. cyathiformis*: we have given it as it stands, because our subject appears to be intermediate between the two; indeed, in the same pasture we have found numbers differing in every gradation of the scale between the major and minor extremes of our dowdy friend. "*Sordidus*" Dickson called it, but that is a harsh term; taken in the primary sense it is inapplicable,—the worst you can say of the poor fungus is, that it is dull and dingy-looking, but "dirty" it is not, much less "gross" or "foul;" and in the other senses of "*sordidus*," one might almost as well call the poor soulless vegetable wicked. We are great sticklers for the proper application of language, loving dearly our mother English, which is often used vaguely and improperly, owing to a neglect of the exact meaning of words. Crabbe's 'Dictionary of Synonymes' should be given to all young people, and kept at their elbow when writing.

Agaricus cyathiformis is now removed from the class *Omphalia*, where it stands in the 'Flora' volume, to *Clitocybe*, sub-division *Cyathiformes*, because the gills are not truly decurrent, as in *Omphalia*, but take that appearance in age, from the fungus becoming deeply infundibuliform. This division of Agarics absorb moisture in wet weather, and thus become many shades darker than in their dry state; the texture, also, is rendered nearly gelatinous by the "water-imbibers"¹ taking in its full draught, though almost coriaceous when quite dry weather.

¹ "Pileus vere hygrophanus."



PLATE II.

BOLETUS ELEPHANTINUS, *Withering*.*Elephant Boletus.*

Gen. Char. Hymenium distinct from the substance of the pileus, consisting of cylindric separable tubes. Name from βῶλος, a *ball*; from the rounded form of many of them.

Spec. Char. BOLETUS ELEPHANTINUS. "Pileus dead white, convex, but very irregular in shape, from an inch to four inches across, downy in the depressed parts, cooping in, and so thick in flesh as to leave but little space for the tubes. Tubes yellow, short, the longest not more than one-third of an inch, adhering firmly to the pileus; pores very small, circular. Stem yellow, from one to two inches high, and nearly as much in diameter. I named it from its thick clumsy stem and its general massy appearance."—Withering's Arrangement, 3rd (not the modern) edition.

Hab. Grassy pastures.

Whether this *Boletus* has any right to rank as a distinct species, or is only a yellow variety of the bloody-crimson *Boletus Satanas*, the two differing in mere colour as phænogamous plants may,—petals being blue, white, or pink not affecting the classification of the flower,—we are not bold enough to decide. The crimson-pored *Satanas*, and this yellow-pored species, resemble each other closely in configuration and general characteristics, with the exception of colour; black and white drawings of each, might pass for the other. In this dilemma, both being so nearly allied to *B. luridus*, that possibly they may be only varieties of that Protean Toadstool, we have thought it better to distinguish the present subject as *B. elephantinus* of Withering, which it answers well to, than to place it as *B. luridus*, var. *a* or *b*, disclaiming any intention of amplifying species; if hereafter *B. Satanas* is proved to have satisfactory specific differences, such as ought to remove it from *B. luridus*, this *B. elephantinus* must go with that gorgeous Blutpiltz, as being decidedly its nearest relative.

If *B. elephantinus* had only once occurred, it might have been allowed that, owing to the absence of the colour-giver, sunshine, or some cause inimical to brilliancy, it had remained pale, and unadorned with the ruby which ought to have tinged the orifices of the tubes (for in all the lurid varieties the crimson hue is merely superficial, or at the mouth, not extending up the tubular processes, and fades, or becomes obscured in age by the ripening spores); for three or four seasons, however, at nearly the same summer period, and on the same spot, a deep grassy field near woods, our yellow-pored friend recurred without change or variation, so that it is quite constant to the same development and colouring.

The pileus in youth resembles a dumpling, which homely comparison must be excused for its aptness;

the stem is quite hidden beneath the pileus, which "coops in," as Withering says; and this lobed, irregular form is never lost in expansion, which is one point of *difference* from the common *B. luridus*, for that is very regularly convex in age and scarcely ever lobed in youth, but it is also one point of *agreement* with *B. Satanas*. The mass of tubes in the latter and *B. elephantinus* is exceedingly concave, unequally compressed, and in age is never convex beyond the margin of the pileus, as in *B. luridus*.

The tubes are extremely fine and close, indeed in young specimens scarcely apparent, and can only be represented by the prick of a fine needle. In our present subject both tubes and orifices are of a clear pure sulphur-colour, without the slightest tinge of red at any period; in age they become dirty yellow or tawny, not at all olivaceous; they turn very blue when cut, but never the deep green dusky olive of *B. luridus*. The stem is yellow, reticulated with red, and changing to purplish-red where eaten by insects; the flesh does not assume a red cast when cut or broken. No peculiar smell or flavour distinguishes it: it is certainly rare; we never found it or heard of it elsewhere than in the field near Barnet Wood, Bromley Common, and Withering seems to have collected it only once at Edgebaston. It has been supposed that his *B. elephantinus* is synonymous with *B. edulis*, but this is an error, possibly countenanced by the recent edition of the Bot. Arrangement: but the *last edition, which was supervised by himself*, is the only one worth referring to at least as regards Mycology.

No variety of *B. pachypus* has a white pileus, and granting that so respectable a fungus might indulge in masquerade for once, greater discrepancies from *B. elephantinus* would remain behind; true, the pores are yellow, but their mass is not concave, nor the tubes shallow, and it assumes no blue or green when cut or broken.

Boletus Satanas is given in the first series of these illustrations as *B. luridus*, var. *a*.

We feel almost certain that our *B. elephantinus* is *B. erythropus* of Krombholz, if not of Fries.



F. R. 1861

Lycopodium complanatum

Spore of *Lycopodium* 100

PLATE III.

LYCOGALA EPIDENDRUM, *Linnæus*.*Scarlet Lycogala.*

Gen. Char. Peridium determinate, composed of a double membrane, somewhat warty, persistent, bursting at the apex. Flocci very delicate. Named by Micheli from λύκος, a *wolf*, and γάλα, *milk*.

Spec. Char. LYCOGALA EPIDENDRUM. Sub-globose, blood-red, thin, brownish-grey, punctato-scabrous mouth irregular; contents of the peridium at first fluid, brilliant scarlet, oozing out in drops when fractured; afterwards glutinous, paler when dry.

LYCOGALA epidendrum, *Fries, Berkeley.*

——— *miniata, Persoon, Mougeot & Nestler, Greville.*

LYCOPERDON epidendrum, *Linnæus, Bulliard, Withering, Sowerby.*

HAB. On rotten stumps and pales. Spring and autumn.

The superstition that the milk of a cruel, ravenous creature like the wolf, partakes of the nature of its food, is a very old one, and not more unreasonable than most other superstitions. The sweet, mild, bland fluid, converted from vegetable food, could scarcely be supposed to have anything in common with that which Macaulay explains the manufacture of:

“The ravening she-wolf knew them,
And licked them o’er and o’er,
And gave them of her own fierce milk,
Rich with raw flesh and gore.”

No wonder the marvellous twins turned out as they did! We can scarcely suppose that if their foster-mother had happened to be a patient ass or a gentle ewe, the nurslings would not have acquired those milder natures;—whether to the world’s loss or gain, who shall say?

When Micheli saw crimson drops flow from a wounded fungus, he naturally enough called it “wolf’s milk;” *Lycogala*, however, as applied to designate a genus, loses some of its propriety, as others of the family have not this peculiar colour. The *Lycogala epidendrum* is the only English species; the *Reticularias* are nearly allied to, and have erroneously been classed with, it; therefore a description of them may not be out of place here.

¹ From γαστήρ, the *stomach*, and μήκης, a *fungus*. Hymenium included in the receptacle.

² From μύξα, *mucus*, and γαστήρ, the *belly*. At first very soft and mucilaginous.

On the decayed stump of a tree, or similar locality, but always on wood, a white mass appears, at first sight resembling a common puff-ball (*Borista plumbea*), frequent on lawns in wet weather; but the *Borista*, although tender, and with a very fragile outer coat, is not, in its earliest state, a mere inspissated milk, as the *Reticularias* are,—genuine *Myrogastræ*, which might be supposed, but for their after development, to consist only of oozing sap from the timber; that development is, however, ultimately very beautiful, and unless watched day by day, the fungus could scarcely be thought the same. In *Reticularia umbrina* a silvery pellicle of the most delicate texture encloses a mass of flocci which spring from a common base, and are branched in a very elegant, distinct, and *reticulated* manner, whence the name; they may be seen to the most advantage if the spores they bear upon them are blown away; various timber, oak or elm, when much decayed, produces this species, which is not uncommon. *Reticularia olivacea* is peculiar to fir-trees; the peridium is hyaline, but the beautiful greenish contents shine through it, giving their hue to the transparent medium, whence its distinctive appellation, *olivaceus*.

The main points by which to distinguish the often-confused genera *Lycogala* and *Reticularia* from each other, are these:—in *Lycogala* the contents of the peridium are liquid when it is broken; in *Reticularia* they are a creamy mass, which does not flow in drops; in *Lycogala* the flocci, or threads upon and among which the spores are situated, are very delicate and evanescent, so that when the spores have disappeared they are gone too, involved in the same gelatinous mass, not powdery; in *Reticularia* they are persistent, like a powder-puff when the powder has been shaken away, the spores escaping in dust.

A very lovely little fungus of this tribe is *Didymium cinereum*, which invests grass in stormy weather; the minute balls form upon the leaves and stems of short fine grass on lawns, &c., so that a blade may be taken for a spike of minute buds of some lavender-coloured flower: these balls burst irregularly at the apex, and then resemble a set of broken shells of some insect's eggs; they will be found to contain black dust (the spores) placed among reticulated white threads (the flocci), and if entirely emptied of its contents, the inner surface of the peridium shines like mother-of-pearl, reflecting prismatic colours.

Lycogala epidendrum is not common, and, when found, can scarcely be mistaken for anything else. In perfection, there are few prettier funguses. No mention is made of its qualities, but some of its congeners are said to have very powerful and dangerous effects medicinally.



A. M. H. del.

Baron & Nichols. imp.

Dædalia gibbosa, Persoon.

PLATE IV.

DÆDALIA GIBBOSA, *Persoon*.*Gibbous Dædalia*.

Gen. Char. Hymenium composed of anastomosing gills or flexuous elongated pores, formed out of the corky substance of the pileus. Named from *Dædalus*, in allusion to the labyrinthiform disposition of the hymenium.

Spec. Char. DÆDALIA GIBBOSA. Sessile, dimidiate, zoned, corky, hard, elastic; zones convex and tuberculated; dirty white, villous or beautifully velvety, when old cinereous, and green from minute algæ; the edge obtuse or subacute, often projecting at the base and very gibbous; but not invariably so. Substance white, spores extremely narrow and close, resembling elongated meshes of fine lace, except at the base, where they are rounder and irregular; white in youth, in age cream-colour.

DÆDALIA gibbosa, *Persoon*, *Berkeley*.

TRAMETES ——— *Fries*.

Hab. On the stumps of various felled trees, often springing from fissures upon the horizontal sawed surface. Rare.

This uncommon and extremely pretty *Dædalia* we have been fortunate enough to find twice, at Wymondham, in Norfolk, and on Hayes Common. In both places the manner of growth was similar, so that we may fairly suppose it generally adopts that style of development. In both cases trees had been felled by the saw, leaving a stump about a foot above ground: the timber at Wymondham was ash, at Hayes, lime, both had been cut down about two years; the slabs of wood cracking in the centre, as is generally the case under such circumstances, the fungus appeared from the fissures in little velvety hemispherical nodules, slightly corrugated, and continued long in this state, without signs of the hymenium in the shape of pore or sinus. When any of these nodules formed near the edges of the slab, they expanded into the gibbous forms of pileus which are proper characteristics of the species. One of the Wymondham specimens was larger than that now depicted, and more spatulate, measuring about five inches by three; its delicate hymenium was crumbling to decay, and as every chance appeared to be in favour of its unchecked growth in that habitat, it is fair to presume that it is the full size it attains.

The period through which it continues to gain a gradual increment is not easily determined; the Norfolk specimen cited above, could not be more than two years old, though apparently disintegrating, but it was evidently injured by boring insects, leaving dust on their traces: it was not a fair case of decay, possibly. One year appears to change the poreless nodules scarcely at all; we have remarked the same thing with similar juvenile members of *D. quercina*; and then suddenly a magnificent pileus has been developed,

apparently task enough for a season to have executed, but really performed by some agency of atmosphere or temperature in a few days; and thus with *Dædulia gibbosa*; periods of growth and of torpidity are probably marked by the swelling zones, and recedent lines of the pileus, as in *Polyporus igniarius*. When taken from the wood and brought into the house, *Dædalia gibbosa* undergoes no material change, but appears likely to endure for years.

The violent death of the tree, and the action of the tool upon it, seem to have a great effect in the vivification of the *Dædalias*, whose spores are probably latent in the sap-vessels, and, without some such, to them, friendly force, could not find their way to life, light, and liberty. "On deals," "on posts," &c., are frequent citations for their habitats; the glory of the family *D. quercina*, one of the funguses greatly abused as a Dry-rot, grows on squared posts, &c., preferring evidently worked timber, and not the standing tree. It may hence be inferred that this family thrive when the sap of timber is released from the wood, in its vigorous fermenting strength, not when weak and flat, in the feeble old age of the decaying tree.

It would appear that while every idle assertion, if made with a front of brass,—every glaring quackery, if supported by gravity of demeanour,—every transparent falsehood, if held in a glowing light—is believed, swallowed, or worshipped, plain truth, simply enunciated, is the last thing the multitude can comprehend. Dry-rot is one of the subjects on which it is impossible to think with patience; one is tempted to believe that builders have an interest in extending and keeping up its ravages, as the greedy apothecaries of Jenner's day did by the small-pox; truth, however, did at last prevail in that case, and may again: the man who may conquer the hydra heads of the timber-rot, is the chemist who discovers a tanning principle that shall render oak-bark valueless.



A M H del.

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Agaricus acutisquamosus, Fries

Reeve & Nichols imp

PLATE V.

AGARICUS ACUTESQUAMOSUS, *Fries*.

Series LEUCOSPORUS.

Sub-genus LEPIOTA.¹

Sub-division CLYPEOLARIÆ.

Spec. Char. AGARICUS ACUTESQUAMOSUS. Pileus brownish-yellow, ferrugineous, fleshy, obtuse, hirto-floccose, afterwards with acute, erect, squarrose, echinate scales. Stem sub-stuffed, at length hollow in the centre, stout, strong, bulbous, pruinose above the middle ring. Gills approximate, lanceolate, simple. Humble, sub-inodorous.

Hab. In grassy gardens.

We have given the characters of this pretty Agaric, which was new to English botany when we first found it, from the *Epierisis* of Fries, but in some respects our observations differ from his, as notes made at the time will show.

Veil matted to the stem, not consisting of arachnoid threads, but resembling finely combed cotton wool; there is no well-defined ring, but at the middle of the stem, where the veil usually forms one, the web is closer and firmer than the rest of it: when stretched and torn by the expansion of the pileus, it is seen that the threads of the veil proceed from the whole length of the stem up to the narrow collar at the apex, into which the gills are inserted; the peronate wool is buff. The flesh reddens slightly beneath the cuticle, which is thick, tough, and fibrous; the spines are composed of the fasciculated extremities of the fibre which forms the epidermis, brought, like the hairs of a painting-brush, to a fine point. The gills are extremely narrow, attenuated both ways, very close and occasionally dimidiately forked; the stem is made up entirely of silky fibres, looser towards the central channel, which has at first a woolly stuffing, but is hollow in age. The taste is mild and insipid, the smell hot and disagreeable, like a flint from which you have been striking fire.

Nothing can exceed the beauty of the appendage called with justice a *veil*, in this Agaric; others of the family are *shrouded*, like Turkish ladies, in a thick close material, differing from the coquettish sylph-like transparent elegance of this, as calico does from the finest webs of the Indian loom. No pencil can represent the delicately woven texture, and although we have tried our best, nature fairly defied us to do her handiwork justice.

We have often repeated the remark that the Agaric tribes in general prefer being denizens of the wildest and freest spots to locating themselves as a civilized community; had they speech they would say, with the poet of freedom, Ebenezer Elliot,

¹ From *λεπίς*, a scale. Veil single, universal, closely adhering to and confluent with the epidermis, when burst forming a more or less persistent ring towards the middle of the stem. Stem hollow, stuffed with more or less densely woven arachnoid threads; equal or thickened at the base, fibrillose. Pileus more or less fleshy, but not compact, ovate when young, soon campanulate, then expanded and umbonate. Flesh white, soft. Gills unequal, never distant nor decurrent; colour of the gills white, in some varieties yellow. Solitary, persistent, growing on the ground, not dangerous.

“We will wander away
Over forest and glen,
As far as we may
From the gentlemen,”

whose agricultural improvements, scarifiers, clod-crushers, and all other ingenious machines for making a thorough change in the constitution of mother earth, are so many engines of destruction and oppression to them, while a meal of guano is an abomination inexpressible. Our present companion, however, *A. acule-squamosus*, is quite of a different way of thinking; the compost-enriched kitchen-garden was the habitat it selected on one occasion, on another the churchyard, among graves. We have depicted it, as it has recurred for two seasons, at the foot of a raspberry stake; being out of the reach of a spade, among the raspberry briars, it will probably continue to appear in due season, for the white threads, or spawn, attached a considerable mass of earth to its bulb, and all Agarics which thus propagate themselves continue to do so while the ground is undisturbed.

Fairies, connected with funguses by many legends, have also fled away before human encroachments. “Speed the plough” was an anathema to them as well as to the fragile tokens of their footsteps. A lingering faith in “the good people” may survive in the wilds of Connaught. . . “Stop! how many years is it since a general belief in fairies prevailed in the rural districts of enlightened England?” “Surely not within a couple of hundred years.” “Well, then, I will tell you a tale to the contrary. There are, near Buckingham, in the parish of Thornboro’ (barrow), two very large barrows. About forty years ago, the farmer who rented the field which enclosed one of these, attempted to ‘plough it down,’ but as often as the share touched the base of the mound, the horses started, plunged, broke their gear, and went kicking off, as no plough-horse ever did before, except poor Pegasus when they yoked him. After many attempts to carry his point, always attended with similar results, the farmer was giving up the attempt to level the obstacle which stood in his way, as ‘a bad job,’ when a neighbour said, ‘Why, don’t you know the fairies have shut themselves up in them hills? it’s they skear the horses; put a pan of new milk to-night where they plunged and kicked so, and you may work as hard as you like in the morning.’ The pan was set, was found next morning emptied of its contents, and merrily the team worked away all that day; but never afterwards were they allowed to proceed unless the dole of a gallon of new milk had been paid overnight. Winter set in, the roads were execrable, the farmhouse a mile and a half off, and at last the good man thought he was paying dearly for the privilege of ‘ploughing down the barrow.’ “From this barrow the Duke of Buckingham afterwards obtained, among other *spolia*, a most beautiful bronze urn, which formed part of the Mediæval Art Exhibition; so the fairies must have relaxed from their vigilance. But the country-people still say “no luck attends the man who opens a barrow:” in some districts it is difficult to obtain labourers to do it, as they believe that any casual hurt, thus received, will never heal!

It is remarkable that barrows, all over the United Kingdom, are placed under fairy guardianship; and fortunate it is, for this faith has, doubtless, saved many an ancient sepulchre from destruction. But it was not merely as places of burial, that a curse was supposed to rest upon whosoever rifled them; the boys who ruthlessly defaced the inscription on the altar-tomb in the village churchyard by their peg-tops, would have shrunk from plucking a daisy on the “fairy” mound. Paganism remains in villages and village customs, above all in village holidays, but we should scarcely have supposed that even in the rudest, most unlettered districts it should have retained a deeper hold on ignorant veneration than anything that has superseded it! “Did you ever meet the man who saw the fairy? I do not mean in Ireland, I know Crofton Croker’s legends, but in England?” Yes, I knew a bold keeper, who when on his midnight rounds saw a grand supper spread under Puck’s oak, in Whittlebury Forest; self-invited, yet most hospitably treated, all went merrily, but in the morning he awoke, with stiffened limbs, which never obeyed his will again. It would have been heinous infidelity to doubt that this misfortune was not a “fairy stroke.”



F. R. del.

Auricularia mesenterica, Fries.

Beere & Nichol. imp.

PLATE VI.

AURICULARIA MESENTERICA, *Bulliard*.

Gen. Char. Hymenium inferior, remotely and vaguely costato-plicate; in wet weather swelling, gelatinous, tremulous; when dry collapsing but integrate, coriaceous, persistent. Hymenium heterogeneous from the pileus, not concrete with it.

Spec. Char. AURICULARIA MESENTERICA. At first effused, entirely resupinate, at length more or less reflexed, often dimidiate, occasionally infundibuliform; the upper surface villous, grey-brown, yellow, olive, &c., fasciated and zoned; gelatinous within. The hymenium quite smooth, or wrinkled when dry, pruinose from the fructification; purplish-violet or light brown. The whole plant gelatinous and tremulous in wet weather, hard, cartilaginous and persistent when dry.

AURICULARIA mesenterica, *Fries, Persoon*.

———— tremelloides, *Bulliard, Withering*.

———— corrugata, *Sowerby*.

PHLEBIA MESENTERICA, *Dickson, Berkeley* (Flora vol.).

Hab. On old trunks, rails, and the foot of trees. Very common.

This fungus was for some time placed among the *Phlebias*, but its discrepancy with the strict botanical characters of that genus, was at the same time acknowledged; and it is now classed with the *Auricularias* of Fries, a very small section of his family *Auricularini*, which includes the varieties of *Thelephora*; the generic name being given from the likeness of many to the ears of various animals. With these ears, however, must not be confounded the notorious ones of Judas, *Exidia auriculæ Judæ* of elder-stumps, they being in fact not ears at all, at least not mycologically *Auricules*. A simple distinction may be pointed out: *Auricularias* proper have the hymenium *inferior*; the *Tremellini*, to which *Exidias* belong, have it *superior*. The true *Phlebias* come under the *Hydnei*, an accommodating community, which receives all waifs and strays disowned elsewhere: the bats of mycology are here received in right of their very ambiguity, not scouted on account of it; few tyros would suppose, if shown *Fistulina hepatica*, *Hydnum auriscalpium*, and *Phlebia merismoides*, that they could by any possibility come under one category. The same fungus, however, often differs from itself as strongly as from another species: the moist, tremulous, gelatinous state of *Auricularia mesenterica* is extremely unlike the crisp, rigid, collapsed condition in which our plate represents it; when growing on the earth, which it occasionally does, nurtured by buried wood, the development is more rapid, and grass, straw, &c., become enveloped in its mass without changing their position. It is insipid and scentless, but ought to be good for some purpose, one can scarcely doubt nutriment being present in its gelatinous texture. The figure given in the plate was only a small portion of a very large

mass growing at the foot of an elm; failing the good qualities we fancy it may possess, there is little to admire in it, but as it was formerly not very well understood, the botanist will be glad to have its proper place defined.

Weather-beaten specimens of *Thelephora hirsuta* may be mistaken at first sight for weather-beaten *Auricularia mesenterica*, but for the colour of the under side, the hymenium is buff in the former, in the latter brown-purple; *Thelephora purpurea* in its rigid dry state has some resemblance to it, but the distinctive purple of that fungus is on the upper as well as the under side, while *Auricularia mesenterica* never has a purple tinge on the upper surface. It is only with washed, aged individuals of any of these varieties mistake can occur, because no *Thelephora* is ever gelatinous. The student should, if possible, procure a fungus at several periods of growth, and never waste time and patience in attempting to fix a species from decayed worn subjects. Another hint we must give is, not ruthlessly and greedily to appropriate every portion of a treasure; leave enough for further development and future crops: it is not fair to be the exterminator of things interesting to others as well as to ourselves.



A M H del

Vincent Brooks, lith

Peziza reticulata, Greville

PLATE VII.

PEZIZA RETICULATA, *Greville*.*Reticulated Peziza.*Series ALEURIA.²Sub-genus MEGALOPYXIS.³

Spec. Char. PEZIZA RETICULATA. Many inches broad, reddish-brown within, and strongly plicate and reticulated; without, whitish and pruinose; margin involute, at length variously split, the segments repand; stem short, thick, costate, sometimes obsolete. Odour strong, like that of nitric acid.

PEZIZA reticulata, *Greville, Berkeley.*

Hab. On the ground in spring.

The *Pezizas*, in general, are quite smooth within the cup, but occasionally wrinkled and veined externally; this member of the family, however, is an exception, as the inside is puckered or gathered in, forming a series of irregular prominences. *Reticulated* is a name that scarcely applies, for a net (as in some melons) should be raised upon the surface, whereas, in this case, mesh-work there is none, the rising portions being those between the confining lines; thus the upper side of many leaves becomes drawn down by the strong veins of the under surface; but if we correctly say the under-side of a savoy-cabbage leaf, for instance, is strongly reticulated, we should scarcely affirm it of the upper. Besides, in this *Peziza*, although the upper or inner surface of the cup is corrugated, that beneath is smooth: by this character it is distinguished from *P. venosa*, in which species the veins are external.

Whether the name suits it or not, a very clean, pure, handsome plant is Dr. Greville's *P. reticulata*. According to Corda, all the family are esculent, resembling the *Helvellas* and *Morchellas*: as far as *P. acetabulum* is concerned, we can bear him out, and should have no objection to try *P. ladia* or *P. cochleata*, of which Mr. Berkeley says he saw a large basket offered for sale as morels; but this example smelt so strongly of nitric acid, we feared to venture on it. In some degree resembling it are, first, the large gregarious internally brown *Peziza vesiculosa*, common on dunghills, old hot-beds, thatch, in fact on decaying straw; this is smooth within, dirty white without, rough and scurfy, at first the margins are connivent, or much inclined inwards, at length campanulate, but never repand; secondly, the *Peziza repanda*, which in colouring and other particulars resembles the last, but splits at the margin into segments, which are never convolute, whence its distinctive name, from this character, *repand*.

¹ Receptacle patelliform, margined. Hymenium superior, more or less closed when young, and concave.

² From ἀλεύρον, *meal*. Fleshy or carnosio-membranaceous, pruinose or floccoso-furfuraceous from the concrete veil.

³ From μέγας, *great*, and πύξις, a cup. Cup open when young, or connivent. Veil superficial.

The hymenium of *Pezizas* is superior (that is, within the cup), and consists of sporidia enclosed in asci, or thecæ (both words are eligible): these are cases of a cylindrical form set closely side by side, so that what appears to our unassisted eye a smooth surface, is, in fact, when microscopically examined, found to be covered with a layer of cylinders, the orifices of which form a plane surface, exactly resembling in miniature the mass of tubes in a *Boletus*, only their position as regards the growth of the fungus is reversed. Each cylinder of each species contains the same number of sporidia, but this determinate number varies in the different sub-genera. In *Peziza badia*, examined while the tubes were yet hermetically sealed, but ready to open, the sporidia were always eight; we regret extremely that at the period *P. reticulata* was found, we had no microscope at hand, and have not, therefore, ascertained whether it agrees in this respect (but it probably does) with its relative.

The *Peziza reticulata* from which our portrait was taken, grew in solitary beauty in the flower-garden at Hayes Rectory, in the centre of a long-undisturbed mass of the common blue *Cynoglossum*, which sheltered patches of *Fissidens adiantoides* (a very elegant moss), and had, therefore, been left untouched. Much has been lately very judiciously said in some of the more scientific gardening journals on cultivating mosses, and, as they are a most lovely tribe, and require to be near the eye for examination, they are worthy the care and culture of those whose territory consists of pots on window-sills or balconies; in the country, however, the best plan of cultivating them we can advise, is to let them alone, to enjoy peace and quiet in cool cosy corners selected by themselves. Our borders, we confess, are often sadly destitute; but if "flowerless" in the common sense, "flowerless plants" are never wanting there: we have a bank covered with the two splendid *Bryums*, *hornum* and *ligulatum*, the beauty of which attracts universal attention, cold, north, over-shadowed bank as it is; and a dark walk, green all over with the curious *Marchantia polymorpha*, its nests of tiny eggs the delight of young eyes, the gardener has long been forbidden to touch; but we suspect our mode of cultivating pretty things will not suit that worthy fraternity. Well, then, nothing does better for mosses than the nooks of a rock-work, shaded by ferns, and kept cool by large flints (moveable ones), stumps, &c.; and whenever we find stumps in the wood, covered with such beautiful objects as *Hypnum rutabulum*, or a neglected flint clothed with the highly-finished *H. serpens*, we bear them in triumph to the pet locality, where ferns and other native treasures are deposited. Many of our friends will probably be interested in knowing how we have contrived to make these flourish exceedingly, at very small expense, and this we promise to reveal on the first spare half-page.



F R del

Vincent Brooks, lith.

Agaricus stypticus, Bull.

PLATE VIII.

AGARICUS STYPTICUS, *Bulliard*.*Styptic Agaric.*

Series LEUCOSPORUS.

Sub-genus PLEUROPUS.¹

Spec. Char. AGARICUS STYPTICUS. Pileus from an inch to an inch and a half broad, between coriaceous and fleshy, semi-orbicular or kidney-shaped, the margin entire or lobed, involute; epidermis pruinose or furfuraceous, often zoned, varying in depth of colour, buff or pale. Veil none. Gills not truly decurrent, branched, beautifully connected by veins, pale cinnamon; spores white. Stem about a quarter of an inch high, lateral, ascending, dilated above, pruinose. Scentless, but leaving a most powerful burning astringency in the mouth and fauces.

AGARICUS stypticus, *Bulliard, Berkeley, Fries.*

———— semipictolatus, *Schaffer.*

———— betulinus, *Bolton.*

———— flabelliformis, *Sowerby, Withering.*

Hab. On various decaying woods. Common. October to April.

If found growing on the horizontal extremity of a stump, solitary specimens of this pretty Agaric are no longer reniform and "side-footed," as when their development is impeded by a lateral position on the wood, but the pileus assumes a regular orbicular form, depressed in the centre, and might easily be supposed a different species; flavour, however, will speedily determine the fact: that first organ of knowledge, the tongue, by which infancy tests and ascertains the nature of things, may often afterwards be appealed to with success, when the judgment of the eye is at fault. We should be sorry to advise swallowing as well as merely tasting, in many cases, and this is one: Corda's account (in Krombholz) is by no means encouraging to a timid experimentalist. We think few would be inclined to make such personal essays in the cause of science as the following describes:—"I cooked five ounces in butter. The taste was so astringent, like ink, and burning, that I could hardly swallow it, without much chewing; the burning lasted above an hour in my throat, notwithstanding that I took everything sweet and sour that I could lay my hands upon; a quarter of an hour afterwards, considerable uneasiness of the stomach, and inclination to reject its contents, prevailed, which ceased, however, without that effect, leaving great heat in the stomach, which gradually subsided without further ill consequences."—*Corda in Krombholz.*

Care must be taken by those whose books of reference are not quite modern, not to confound together things essentially different. It is often really difficult to make out what was meant by the older authorities; and as those mycological articles once treasured in the *Materia Medica* are now expunged from

¹ From *πλευρόν*, *a side*, and *πόὺς*, *a foot*. Pileus excentric or lateral. Stem, when present, solid and firm. Gills unequal, juiceless, unchangeable, acute behind. Growing on trees or wood.

it, anxiety to ascertain the genuine substance has ceased likewise. The Agaric of druggists, formerly used as a remedy for consumption, but one so potent as certainly to kill if not to cure, is *Polyporus laricis*, and, we believe, has never been found in Britain, where the larch is comparatively a junior member of the forest community; but it by no means follows that, in process of time and decay, it may not appear, to reward industrious students. Another fungus, called *Agaricus stypticus*, from having been employed, instead of bandages, as a surgical compress, and also *Agaricus quercinus*, from its growing on oak timber, is *Dædalia quercina*; the effects ascribed to the use of this species seem to have been due to the mechanical action of its texture, rather than to any chemical virtues possessed by its juices. This *soi-disant* "Agaric" of surgery was supposed by Sir J. E. Smith to be *Polyporus igniarius*, the Amadou, or German tinder; but that, although recently employed to prevent abrasions of the skin, is a very different thing.

Even supposing any given fungus to possess potent and most valuable qualities, the ignorance which formerly prevailed concerning the tribe would have rendered their use hazardous (indeed, it prevails still); and the very various results reported whenever such remedial agency has been called in, implies that different members of the family have been confounded with each other. We can hardly expect that doubtful medicines should be exhibited, when certain ones are in the nearest chemist's shop. Physicians cannot ramble in search of "simples" themselves, and the professional devastator, calling himself "herbalist,"¹ of course supplies, whether correctly or not, anything asked for, secure in the almost certainty that the inquirer after one Agaric is not able to detect the substitution of another; in fact, with so many errors in nomenclature, confusion is scarcely avoidable.

Agaricus stypticus of the recent Mycologists, our present pretty little subject, cannot be mistaken for any of its predecessors in the title: Fries has classed it with a few congeners of similar coriaceous dry texture, under the head *Panus*; this texture renders the fungus very persistent. During the winter through it flourishes, sometimes shrivelled by frost and keen wind, but giving out again in rainy weather; the zones are not so much variations in colour in the pileus, as alternate ridges and depressions of its substance. Even in weather-beaten old age the tough little plant remains attached to the stump, ragged and pallid, like fragments of *Thelephora hirsuta*, their similar enduring consistence enabling both to subsist after all characteristic external beauty has disappeared.

¹ It must not be supposed that these remarks are levelled at respectable tradesmen, but at such persons as sell *Belladonna* berries to make pies.



PLATE IX.

AGARICUS NEBULARIS, *Batsch*.*New-cheese Agaric.*

Series LEUCOSPORUS.

Sub-genus CLITOCYBE.

Sub-division DASYPHYLLI.¹

Spec. Char. AGARICUS NEBULARIS. Pileus four inches or more broad, compact, even, at first conico-convex, obtuse, with a broad umbo, round which there is a slight depression in age, but never in the centre, quite smooth, when young fuligino-cinereous, afterwards paler and more ochraceous, the margin involute, pruinose, at length waved, gradually expanded, but never plane. Flesh thick, white. Gills subdecurrent, arched, narrow, very close, sometimes in age emarginate, with a decurrent tooth, ivory or cream-colour; in the variety *A. turgidus*, of Greville, they are ochraceous. Stem from two to four inches high, half an inch or more thick, more or less bulbous and incurved at the base, not rooting in the earth, but supported among dead leaves by a cottony web, in youth appearing solid, but truly stuffed, firm, elastic, at length hollow, at first fibrilloso-squamulose, paler than the pileus, sometimes twisted. Odour strong, like new cheese. Esculent, excellent.

AGARICUS nebularis, *Fries, Berkeley*.———— pilularius, *Bulliard*.———— canaliculatus, *Schumacher*.———— turgidus, *Greville*.———— caseus, *Withering*.*Hab.* Among accumulations of dead leaves, in plantations, &c., not in dense woods. Not common. Autumnal.

There is a highly-finished elegance about the contour of *Agaricus nebularis* when in perfection, with which the quiet Quaker garb accords admirably; colour sufficient is given to it for relief, while the purity of the ivory gills, the delicate soft texture of the pileus, the snowy flesh when broken, and the faint but not disagreeable odour of new cheese, must remove prejudice as to its being a proper article for food. Of all the mycological dainties we have induced various accomplished gastronomes to taste, this Agaric has had the most votes in its favour; but we must explain, that it is as being in itself a delicate agreeable article of diet that it claims attention, not as resembling the common mushroom, or in any way as a substitute for it; no comparison can be instituted between the two. It is extremely tender and digestible when carefully cooked, which is best performed by frying in a small quantity of fresh butter till crisp and slightly browned, pepper and salt being sprinkled upon it during the operation. No Agaric is more

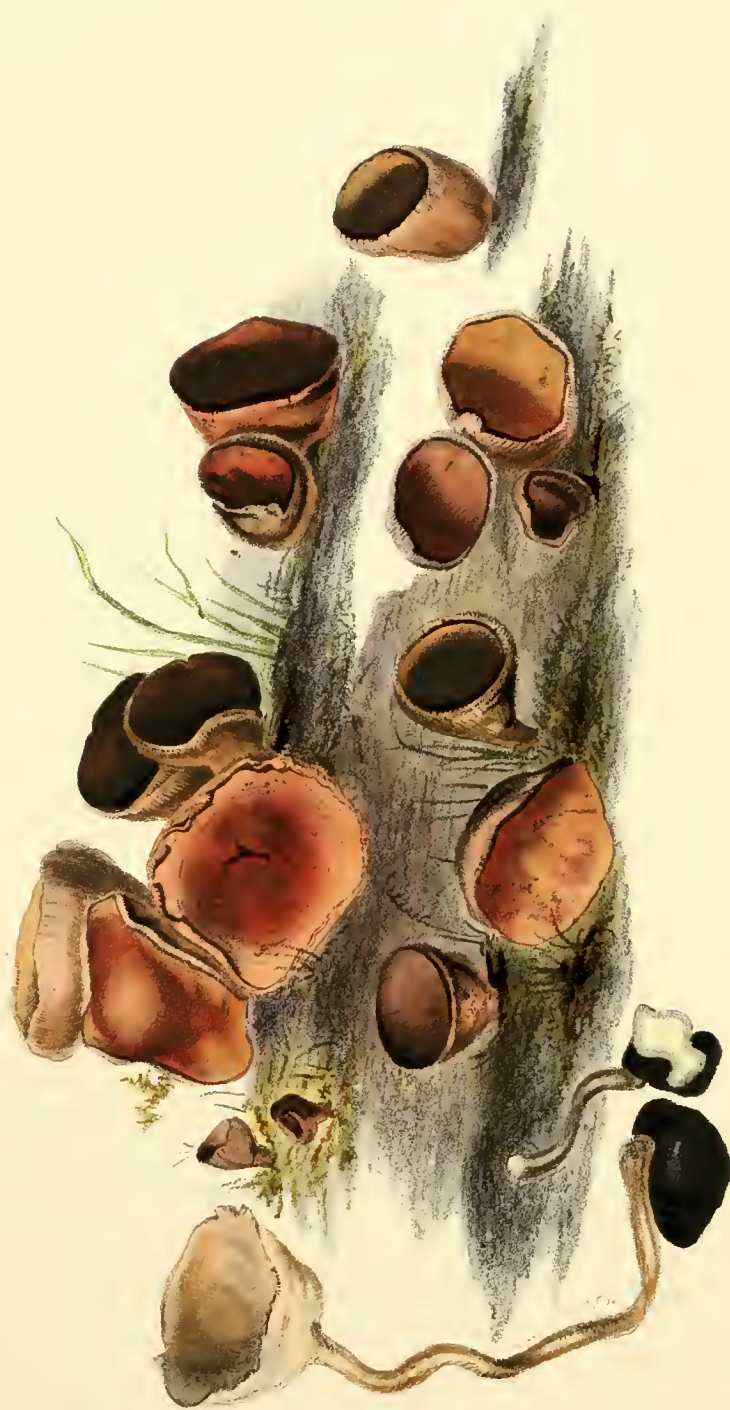
¹ From *δαρὺς*, *close*, and *φύλλον*, *a leaf*, in allusion to the gills. Pileus dry, smooth. Gills close, decurrent, or acutely adnate.

palatable to insect larvæ as well to ourselves ; and when they have taken possession, we will allow them to retain it, for most assuredly it is no longer worth a contest.

Although a large and solid species, *A. nebularis* appears to arrive at this weight and bulk without deriving any assistance from the earth. Various kinds of dead leaves form its nidus, and, on lifting it up, remain caked together and attached to it by a profuse cottony web permeating the mass, bracing up and supporting the stout stem and well-balanced pileus ; whenever any circumstance occurs to affect this balance, the stem makes a bend to counteract it, thus permanently curving the bulb. Windy exposed sites are never chosen as a habitat by our friend ; dry ditches where leaves lie thickly, and irregular ground affording sheltered nooks, are its favourite haunts ; the beech is the tree preferred as a neighbour ; the leaves of others may be mixed in the attached mass, but we have never found it in Kent, except where the predominant foliage was that of *Fagus sylvatica*. Not many habitats have been cited in England ; but probably in the glorious groves of the Chilterns, as at Ashridge, where the silver trunks rise branchless for thirty or forty feet, like "the pillars of some fair aisle," an explorer might be rewarded by plentiful groups of our excellent Agaric. It is strictly an autumnal fungus, for it cannot appear till leaves enough have fallen to make a nidus : perhaps the leafy conglomerate affords an artificial heat which stimulates its production, but the cotton sheathing the bulb must not be supposed similar in nature to the "spawn" of mushrooms, it has nothing to do with the propagation, being merely a most admirable mechanical contrivance to sustain the fungus upright. That an Agaric so substantial should derive nutriment only from the atmosphere, dew, or rain, seems indeed surprising, yet so it must be, for the fibres of the cottony investment can scarcely absorb and convey to the plant, from the leaves, any material supply of food ; at any rate, it must be granted, that our elegant friend is not, like many plants, a "gross feeder," and we naturally infer a purer wholesomeness as diet for ourselves from the ethereal nature of an Agaric's food, than if it abstracted it from dungy pastures.

Agaricus pileolarius of Bulliard (plate 400) is our *A. nebularis*, which Persoon recommends in his 'Champignons Comestibles' as very agreeable in flavour (the tazza-shaped *A. pileolarius* of Sowerby, given in our First Series, although a near relative, is very different). Persoon says it is common in forests, particularly those of pine ; we suspect it is the variety *A. turgidus*, of Greville, which prefers this locality. Fries is undoubtedly right in ascribing that more clumsy and darker-hued individual to this species ; we had come to the same conclusion long before we saw the 'Epicrisis.'

There is a very magnificent Agaric in general habit of growth, site, and season, much resembling *A. nebularis* to the cursory observer, but the student will observe that the gills are tinged with violet, and the spores are reddish-ochre. Perhaps this latter is *A. violaceus* of Sowerby (not the true *A. violaceus*, the "bishop" of mushrooms), confused with the Blewit, *A. personatus*, but referred by Fries to *Cortinarius myrtilinus* ; another season must elapse before we can settle this question satisfactorily.



F.R. del.

Vincent Brooks, lith

Peziza tuberosa, Bull.

PLATE X.

PEZIZA TUBEROSA, *Bulliard*.*Tuberous Peziza.*Series ALEURIA.¹Sub-genus GEOPYXIS.²

Spec. Char. PEZIZA TUBEROSA. Cup thin, infundibuliform, bright brown, at length pallid. Stem from one to three inches long, running into the earth, springing from a shapeless black tuber.

PEZIZA tuberosa, *Bulliard, Dickson, Sowerby, Withering, Berkeley.*

Hab. Spring. Not common.

There are but two long-stemmed *Pezizas*: one, *P. macropus*, is a delicate, mouse-coloured, tenderly-membranaceous cup, placed upon a slender stem above ground, the shape resembling an antique shallow drinking-glass; this species is solitary and rare; the other is this singular fungus called *P. tuberosa*, because the long stem, which is entirely below the soil, springs from a small black tuber. Many collectors might find the bright brown cups, which are gregarious, without the slightest suspicion that they had any stem at all. In woody glades, where *Anemone nemorosa* and the "pig-nut" (*Bunium flexuosum*) abound, this *Peziza* may often be found also, which led to the idea that it was parasitic upon a root of one or other of these plants; but the "shapeless black tuber" has since been determined to possess a fungoid nature, and Mr. Berkeley supposes, as Sowerby first suggested, that the tuber may be *Sclerotium*³ *fungorum*, var. *lacunosum*, which is described as "hard, lacunose, black, subterraneous;" and as *Agaricus tuberosus* grows often parasitically from one *Sclerotium* (*fungorum*), this idea of the *Peziza* finding a matrix in another is a reasonable supposition. A section, taken quite through both, proves the tuber and stem to be homogeneous, no point of separation is internally traceable; but this is not a proof that originally it was so, for the *Peziza* might convert the substance of the *Sclerotium* into its own. Some *Sphaerias* fill up and change the structure of the insects they fasten on so completely, that their whole internal substance becomes fungoid: witness the extraordinary Australian members of that family, which are at least as great paradoxes as any of the others in those regions, so startling to our old-world ideas. The great family *Sphaeria* contains a vast variety of beautiful and most curious species, differing exceedingly in size, character, and mode of growth, but very few of them fit subjects for our style of illustration; as, however, we have nothing more to say touching

¹ From ἀλείρον, *meal*. Flethy or caruoso-membranaceous, pruinose or floccoso-furfuraceous from the concrete veil.

² From γῆ, *earth*, and πύξις, *a cup*. Cup at first closed. Veil innate.

³ *Gen. Char.* More or less round, rootless, covered with a thin bark-like epidermis; bearing fruit, but rarely all round. Named from σκληρός, *hard*.

Peziza tuberosa, and having before explained the general characters and botanical structure of *Pezizas* in general, we hope a few particulars respecting a most wonderful *Sphæria* will prove interesting, although we do not present our figures of it, as it is not "British;" we have, however, two British *Sphærias*, similarly produced on the dead larvæ and pupæ of insects, and the topic seems scarcely irrelevant to our present article, since it helps to explain the probable conversion of the substance of *Sclerotium*, by the parasitic *Peziza tuberosa*.

The caterpillar with a *Sphæria* growing from it, of which we made as correct a portrait as possible, and which portrait is now before us, is the larva of *Hepialus virescens* of Doubleday, found in New Zealand; it is as large as those of our larger *Sphinxes*; all colour has vanished, but the contour remains perfect. From the head proceeds a rigid, contorted stem, six or seven inches long, like a dry twig, or very solid herbaceous flower-stem; the upper portion, for about one-third of its length, is closely beset with minute spheres, many broken open and containing dust-like bodies. When first we examined this curious object, thinking of Tartarian lambs, and similar ingenious fabrications, we shrewdly suspected that in his native paradise of ferns, a cunning New Zealander had trimmed the rhizoma of some creeping fern into this caterpillar, and that the fructification was analogous to that of the Adder's-tongue; but being assured, on competent authority, that a powerful microscope developed asci and sporidia in the capsules, which consequently were true *Sphærias*—that we had in England both a caterpillar *Sphæria* (*militaris*) and a chrysalis *Sphæria* (*entomorrhiza*) about which no question had ever been raised, and fine specimens of both had been found by Mr. Berkeley in person—it only remained to admire, in acquiescing wonder, one more of the marvels of creation.

The following valuable information was transmitted by Dr. Joseph D. Hooker, of H. M. discovery-ship *Erebus*:—"About *Sphæria Robertsii* I collected all the information and as many specimens as I could, but still am much at a loss to account for its development. They are found in spring, generally under tree-ferns; the caterpillar is buried in the ground, as is the lower portion of the fungus. Now both these fungi (*i. e.* this and the following species¹) belong to caterpillars which bury themselves for the purpose of undergoing the metamorphosis; and both Mr. Taylor and Mr. Colenso hold the same opinion, that in the act of working the soil the spores of the fungus are lodged in the first joint of the neck, and the caterpillar settles head upwards to undergo its change, when the vegetable develops itself. I do not remember whether you have remarked, in your 'Icones,' that the entire body of the insect is filled with a pith, or corky vegetable substance, and that the intestines are displaced, which my specimens in spirits show well; and then what does the muscular fibre of the animal become? It must, I suppose, be all turned into vegetable, for the skin of the creature remains quite sound all this time. This change may take place from the displacement of one gas, and development of another; it also occurs in the dark, and is hence somewhat analogous to the formation of fungi on the timber-work in mines. However this may be, the whole insect seems entirely metamorphosed into vegetable, with the exception of the skin and intestines."—REV. M. J. BERKELEY: *On some Entomogenous Sphæriæ* (Hooker's Journal of Botany).

¹ *Sphæria Taylora*, an analogous Australian species.

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A. N. H. del.

Forest & Thicket. imp.

1847

PLATE XI.

AGARICUS VIRESCENS, *Schæffer*.*Green-warted Agaric.*

Series LEUCOSPORUS.

Sub-genus RUSSULA.

Spec. Char. AGARICUS VIRESCENS. Pileus from two to four inches across, never viscid, fleshy, firm, at first globose, then umbilicate, expanded, much depressed in the centre in age, but the margin always remaining plane, obtuse; the cuticle is shining, thin, transparent, splitting at the margin, pallid or variously shaded with ochraceous tints, covered with a thicker stratum, which is opaque, ceraceous, farinose, broken up at length into irregular warts of a dull verdigris or glaucous hue. Gills pure white, perfectly free, but in age appearing slightly decurrent from the depression of the pileus, unequal, rather distant, forked particularly at the junction with the stem, exceedingly crisp, firm, and brittle, varying greatly in breadth in different individuals, for the most part sub-lanceolate. Stem white, sub-rivulose, thick, nearly equal, hard, compact, not stuffed, but homogeneous, entirely composed of cells (*spongiosolidus*), softening in the centre with age. The flesh both of the stem and pileus pure white, "sweet and agreeable to the taste, like a hazel-nut" (Kromb.); the flavour approximates to that of the Champignon (*A. oreades*), not at all to that of lard, as in *A. heterophyllus*. Esculent; most excellent.

AGARICUS vireseens, *Schæffer*, *Fries*, *Vittadini*.RUSSULA Palomet, *Thore*, *Persoon*.MOUSSERON Palomet, *Paulet*.CHAMPIGNON DES DAMES, *Clusius*.*Hab.* Under oaks and beeches, in woodland glades. July to October; rare.

Vittadini is always most particular in giving the characters of a fungus, and carries his descriptions to the extreme of minuteness, so that, when he is right in the identification of any given species, there can be nothing better said about it, and very little left to say. In the present case, the true *A. vireseens* was before him, and his portrait is the best extant; unluckily, there our commendation must stop, for his account of its qualities belongs in part to *A. vesvus*. The Verdette has not the flavour he ascribes to it of "*Cancer astacus* when broiled;" *A. vesvus* does resemble shell-fish more than flesh; it has no "faint sub-nauseous smell when fresh," but *A. vesvus* may be fancied like lobster or crab, faint, but nothing like nauseous; that either of these delicate articles of food acquires a "smell of salted meat in drying" is an imputation we as confidently deny, as we confidently affirm that a rose, from which Italian noses are turned in disgust, is very grateful to English organs. We should not have felt sure of our pretty greenish Agaric being the *Mousseron Palomet* of Paulet, had not his countryman, Persoon, so identified it in his 'Champignons Comestibles'; he adds to his description of it in that work, "Its odour is very agreeable, without being penetrating; its flavour is exquisite when cooked; it is served at all tables, and is good with every sauce."

Sauce is, however, quite superfluous, except a sprinkling of pepper and salt ; the butter in which they are fried (the mode of cooking we recommend) must be of the best quality, or it will spoil the delicate flavour of the Agarics. In our own district *A. virescens* is rare. It loves mossy banks and moist situations, and springs up at the season when heavy summer rains prevail ; never in dry or cold weather, nor on sunny sites, nor in bushy underwoods, but where there is umbrage enough to screen, without suffocating, it. Paulet, by choosing to call all esculent Agarics that grow among moss, "Mousserons," has brought together things very unlike each other, as any one who compares this delicate fungus, called in the old poetic style of nomenclature, Champignon des Dames (and well does its pure alabaster form, flecked with green, merit the honour of being so dedicated), with the true Mousseron of cooks, *A. Georgii*, will perceive at once : they are perfectly dissimilar. Corda says, "Eaten raw, the flavour is sweet and pleasant, like a fresh hazel-nut ;" and in this our experience bears him out ; it is, therefore, remarkable that, when cooked, few of the fungus family resemble animal substance more nearly than this. Eaten raw, also, *A. heterophyllus* only betrays the similarity to meat it afterwards acquires, by a slight and not disagreeable taste of pure hog's lard. These two Agarics, which have been often confounded, may be distinguished from each other by this difference in flavour when in a natural state ; in the dish, we do not think the palate could tell them apart ; the substance of *A. virescens* is more solid and crisp. Their being confounded with each other is, luckily, a point of no consequence except to the botanist, as both are equally good for food ; for if it were desirable to render the multitude wise on the subject, we should despair. To the "illuminati" we may say :—The unique texture of the epidermis is a sufficient test from any *Russula* you may find. Pallid specimens of *A. heterophyllus*, with more green and less purple than usual, have been mistaken for *A. virescens*, without the warts ; but it never is without the warts except in infancy, before the epidermis is stretched and breaks up in consequence ; these warts are innate portions of the outer coat itself, not superficial like the fragments of a veil, and therefore easy to rub off : they neither rub nor wash off. There never is the slightest tinge of purple or red about the fungus, and the green is not that of an apple, as in *heterophyllus*, but of a verdigris hue, "that of the foliage of pinks" (Paulet) ; the gills are more rigid and not so close, the flesh is much firmer and crisper ; in *A. heterophyllus* the gills are broadest in front, in *A. virescens* attenuated both ways, and altogether narrower in proportion to the bulk of the pileus. We can only add, by way of advice to the mycologist who finds this truly lovely and excellent Champignon des Dames, "You are lucky ; cook carefully, and eat fearlessly."



E.K. del

Reese & Nichols. imp

Boletus elegans, Fries.

PLATE XII.

BOLETUS ELEGANS, *Fries*.*Elegant Boletus.*

Spec. Char. BOLETUS ELEGANS. Pileus compact, from an inch and a half to three inches broad, sub-viscid at first, afterwards nearly devoid of gluten; plano-convex, sub-ferruginous yellow, becoming bright golden yellow; margin smooth, at first involute, then plane, acute. Flesh yellow, unchangeable. Stem firm, in youth thickened at the base, at length nearly equal, yellow, becoming rufescent, reticulated and punctate above the ring. Ring membranaceous, fugacious, in youth white, then dingy yellow. Tubes decurrent, minute, simple, golden sulphur. Spores pale ochre. Taste pleasant, esulent.

The major form of this species, *B. flavus* of Fries and other authors, differs only in being more coarsely developed in all its parts.

BOLETUS elegans, *Fries*.

———— luteus, *Krombholz*.

———— flavus, *Bolton*, *Withering*, *Fries*.

———— *Grevillei*, *Greville*, *Berkeley*.

Hab. Common in the Highlands of Scotland; more rare in England; in fir woods and under birches. May to October.

Precedence should perhaps be given, in describing two varieties of a *Boletus*, to the *major* form, and had we followed only our own ideas on the subject we should have called the present pretty species, *Boletus flavus* of Bolton, var. *elegans* of Fries. Perhaps, however, it was the exercise of sound discretion, such as we mycologists are bound humbly and faithfully to believe our great master, Elias Fries of Upsal, possesses, which made him select the *better defined of the two forms*, and that is unquestionably the *minor*, as the type of the species. We say "better defined," because *B. flavus*, in its usual appearance and development, resembles *B. luteus* (*B. annularis* of the older authors) very closely, so that to a common observer it might be difficult to point out their distinctive characters; while these are easily shown as existing between the extremes; that is, our refined example of the one species, justly styled "*elegans*," and that repulsive individual which stands first under the class *Fiscipelles*, *B. luteus*; we trust, however, some day to rescue even him from undeserved obloquy. Poor fellow! he cannot help his ugly coat, but under it lies hidden great worth. The use of the disguising coat is another thing, there we confess ourselves foiled; but in this world of guesses, perhaps a conjecture pretty near the truth may present itself to some inquiring student. "Because" cannot always follow "why," or this mortal would assume at once the promised immortality, when we shall no longer "see through a glass darkly:" then we shall know, no longer guess, and then the investigator who reverentially seeks in Nature the handiwork of Nature's God, shall verily have his reward.

Corda speaks in high terms of *Boletus flavus*, as well as of *B. luteus*; they are, in Bohemia, boons given to man without the "sweat of his brow," excellent diet, springing spontaneously in barren and desolate places. We have never eaten the pretty yellow fungus now depicted, but should not hesitate to make a dish of it if a sufficient quantity of the dainty could be procured here; but, alas for us Southrons! it might be a *bonne bouche* (many things are "little and good"), but never more than a "*bouchée*" could be collected in these localities; the larger variety in some seasons is plentiful enough to supply the cook, but it so early becomes the prey of insects that only in a juvenile state would it be proper for the table.

But utility, much as we praise when we discover it, is not all in all; unless we declare to be *useful*, everything that pleases the eye and charms the fancy; and in that sense (in confidence) we do believe all has *utility*, for if the bow-string of care were strained for ever without taking rest, it would—we know it does—snap asunder. How many, worn into premature old age, into imbecile dotage, into raving insanity, might have been healthy, flourishing, intelligent, if the external universe had diverted their minds from the narrow cells of business; if they could have seen the beauty of a landscape, without thinking of the value of the estate, or have estimated the wondrous fabric a tree is, when they measured its solid contents of timber! But, from digression, to return to *Boletus elegans*: apart from the sense of touch (fingers involuntarily recoiling from slimy articles), this fungus recommends itself in various ways to our attention: by its colour in particular, which, when the pileus emerges from a bed of the gayest green moss, under the dark sombre boughs of Scotch pines, catches the eye with most agreeable effect; relieving the arid, barren ground strewn with decaying cones and "needle-leaves;" its fresh-growing beauty contrasting with hoary decay, its colour with shadows, its soft rotund form with angles and asperities. Such golden spots gem a living landscape, but would be mere patches of colour in a painting. It is unfortunate that all the gay colours of funguses are unavailable to the artist: it is not merely a question of stature, but their simple shape with unbroken contour, which renders them of no foreground utility; they would resemble at best scarlet or yellow pebbles. A much more minute growth, that of the *Leprarias* (members of the great family *Lichenes*), no painter would consent to see expunged from Nature's picturesque stock of objects, for nearly all the weather-stains of stones, and all the white and sulphur-coloured patches which relieve the grey bark of trees—making lights to catch the light—are among them.



A. M. H. del.

Perry & Nichols imp.

Peziza badia, var.

PLATE XIII.

PEZIZA BADIA, var., *Persoon*.*Bright-brown Peziza.*

Series ALEURIA.

Sub-genus MEGALOPYXIS.

Spec. Char. PEZIZA BADIA. From one inch to two inches or more broad, sub-cæspitose, nearly sessile, irregular, flexuous, entire, margin at first involute; extremely changeable in colour, which greatly depends on the state of moisture; within, brown, rufous-purplish or olive, without paler, whitish, pruinose, villous and often lacunose at the base. The same individual loses colour in dry weather, or becomes dark when charged with rain, so as to be scarcely recognizable.

PEZIZA badia, *Persoon, Berkeley, Fries.*

Hab. In gardens; at the edges of lawns in flower-beds; not rare near London. Spring and summer. Esculent.

For several seasons this truly elegant *Peziza* has appeared after heavy spring and summer rains, running in groups along the edge of the sod bordering a peat-bed, on the lawn at Hayes Rectory; preferring those portions shaded by the decumbent branches of *Daphne Cneorum*, a most fragrant and elegant bower for the delicate waxy cups, so easily chipped and split. Having, at the time we found *Peziza badia*, the loan of a most perfect microscope, an excellent opportunity was afforded of studying the structure of the hymenium. The tubes were compactly wedged together, but each distinct and separable from the others, like the tubes of a *Boletus*, the lower portions being immersed in the substance of the fungus. Each contained, universally, eight sporidia, closely packed, not like a rouleau of money, in the case, but at an angle with it; this may be very distinctly seen, from the transparency of the cases. At this period the mouths of the tubes were closed, and the sporidia lay in them, all at the same angle; when the *Peziza* had attained, or rather passed, full maturity (for it was beginning to fade), a curious change took place—the upper two or three sporidia placed themselves at an angle exactly the reverse of their prior position, in opposition to those remaining below, which thus were enabled to give their brethren a shove, to assist them in exploding from their case. Such explosions took place under a glass, where no current of air could interfere; but when the glass was removed, a puff of wind or of the breath greatly facilitated the operation. Each dust-like particle was not simple, but a sac, containing two other small bodies! Those minute reproductive bodies which are called spores when placed on a pedestal-like support called a sporophore, as in Agarics, are called sporidia when packed in tubes called *asci* or *theceæ*, as in the Helvellaceous and Cupulate funguses. In the present case, the sporidia themselves containing other bodies, the technical expression to describe the inner surface of the *Peziza badia* cup is this: “Hymenium superior, consisting of fixed *asci*, accompanied by paraphyses (abortive *asci*). Sporidia eight, each containing two sporidiola.”

Whether all other *Pezizas* of the same division have eight sporidia in each tube, we have had no opportunity of ascertaining; but it is probably so. The *Helvellas*, *Morchellas*, &c., have the same kind of fructification. Reflect a moment on this wonderful arrangement. The surface of the fungus appears to the naked eye perfectly smooth, like the petal of an artificial wax flower; examined by the microscope, we see that it is frosted over with small bodies: we tap the fungus, and these fly up and into the air like a puff of smoke. On making a section of the hymenium, a row of tubes is displayed, and we can count the minute bodies they contain; if we began our examination while the mouths of the tubes were closed, the miraculous regularity of Nature's works is indeed displayed, for all these countless transparent cases contain neither one more nor one less, but always the determinate number proper to its kind. And these beautiful objects of study are within the reach of all. They may be procured without money and without labour, except a pleasant walk in pure air; they spring up, and attain perfection, and die away, and "no man careth for them;" in his pride the lord of the creation treads them underfoot. How many things are there which we may be sure were not made in vain, but are neglected unless we discover that they are able to help us in some way, to clothe, or feed, or ornament us! How many beautiful and interesting things are wantonly destroyed, when, unless we can show to the contrary, they have as good a right to live out their time as ourselves! "Why cumbereth it the ground?" we fear if the same question were asked as to human desert, thousands of mute witnesses might justly rise up against us. They at least answer the end of their existence: do we? Let us learn humbly to appreciate the handiwork of the Almighty.

To return to *Peziza badia*, from which we have rambled away; a habit, we trust, excusable, since it must have been acquired in erratic wanderings in search of our friends the funguses. The trivial name *badia* may be correctly translated *sorrel*, as well as *bay*; and the former is the more applicable term, being exactly the colour of the *Peziza* when it does not assume a vinous tinge. We have never collected at one time a sufficient quantity for a dish, but there is every reason to believe in its good qualities for the table, and, on the authority of Corda, we intend to try it the first opportunity.

There is a very rare *Peziza*, called *onotica*, or ear-shaped, and the involute portions of our present subject greatly resemble the human ear; but it is the prolonged prick-ear of some animals that *P. onotica* is like in configuration,—the ear given to the antique faun, in distinction from that of man.



F. R. del

Ref. 100101

PLATE XIV.

AGARICUS ATRAMENTARIUS, *Bulliard*.*Inky Agaric.*Series PRATELLA.¹Sub-genus COPRINUS.²

Spec. Char. A. ATRAMENTARIUS. Gregarious, caespitose. Pileus in youth obesc, ovate, rugoso-plicate, lacunose lobed, sprinkled with glittering meal, afterwards campanulate, obtuse, dirty-grey or brownish, innato-fibrillose, more or less furfuraceous, the apex clothed with dark scales, the margin uneven. Gills very broad and close, at first white, changing to purple-brown, the margins remaining white, ventricose, rounded behind, quite free. Stem three inches high, half an inch thick, fistulose, juicy, fibrillose, brittle, the substance banded concentrically, attenuated upwards, the base nodose; veil fugacious. Spores very dark brown.

AGARICUS atramentarius, *Bulliard, Fries, Berkeley.*

——— fimetarius, *Sowerby.*

Hab. Fields, gardens, waste places, roots of trees. Spring and autumn.

As might be expected, the *Coprini*, or Dung-stools, have little to recommend them; neither beauty nor utility (except, perhaps, as vegetable vultures) can be the boast of the majority, and one who has seen large masses in decay, their black juices staining the turf and disfiguring all within their reach, cannot be blamed for pronouncing such toadstools a pest, and attempting by all means to eradicate objects so unsightly in dressed grounds.

Agaricus atramentarius affords a considerable quantity of black fluid, which is not to be recommended as ketchup, although perhaps it is not poisonous, but the colour would spoil the appearance of any dish to which it might be added. Some expounder of the mysteries of antiquity decided that the black broth of Sparta was mushroom ketchup! if so, it was a less nauseous mess than it has been represented; but be that as it may, youthful prejudices, contracted from the history of Greece, would always prevail in rendering black a disagreeable hue in any broth. *Sepias* make excellent soup, but we do not think their ink-bag improves the appearance of this Mediterranean delicacy. The expressed ink of *A. atramentarius* resembles *Sepia* in colour, not being perfectly black. Sentences written with it have stood the test of sixty years

¹ From *pratium*, pasture-ground. Veil not arachnoid. Gills changing colour, clouded, at length dissolving. Spores dark brown or black.

² Gills free, unequal, thin, simple, changing colour, at length deliquescent. Veil universal, more or less concrete, flocculose, fugacious. Stem fistulose, straight, elongated, brittle, subsquamulose, whitish. Pileus membranaceous, rarely subcarnose when young, ovato-conic, then campanulate, at length torn and revolute, deliquescent, distinct from the stem, clothed with the flocculose fragments of the veil. Fugacious fungi, growing in rich dungy places, or on rotten wood.

without fading in the least, and very little common ink can have so much said in its favour; it is true that, freshly used, it is not as rich in hue as that chemically composed, but then it is perfectly indelible; neither acids nor damp affect it. To keep it for use it should be placed in a glazed earthen or glass vessel on a gentle stove till the moisture is totally evaporated; when wanted, the powder may be mixed up with sufficient water, in which a very small quantity of gum has been dissolved, to bring it to a proper consistence. We venture to suggest that this product of *A. atramentarius* is worthy the consideration of a practical chemist. As marking-ink it might be useful, superseding the destructive preparations from lunar caustic, which in process of time represent the initials by a destruction of the threads instead of writing. The Chinese mark their linen with an ivory stamp dipped in Indian ink, which is now known to be merely a preparation of Sepia, with a little musk and gum; and our colourmen's Sepia, as well as theirs, stains indelibly, as any unlucky experiment with a cambric handkerchief in wiping out portions of a drawing executed in these inks will prove;—we can scarcely say, satisfactorily. The Chinese have found this animal matter, Sepia, useless for china painting, as the heat of the furnace destroys it entirely: we fear the vegetable ink of *A. atramentarius* would likewise disappear in baking, but where dry heat is not in question it might undoubtedly be rendered useful.

In some seasons, this Agaric is very abundant in kitchen-gardens and on banks by road-sides. While young it is not devoid of beauty: the pileus near the margin is regularly marked with very fine longitudinal lines, formed by the backs of the gills beneath; the gills are extremely fine and regular, and prettily mottled by the ripening spores. No mistake can be made between *A. atramentarius* and its tall wigged brother *A. comatus*, which is at first white and shaggy, rapidly deliquescing, and ultimately with a few jagged fragments remaining at the apex of the stem, like the remains of an extinct Catharine-wheel.



F. R. del

Reve & Nichols. xxy

Agaricus fascicularis, Hudson

PLATE XV.

AGARICUS FASCICULARIS, *Hudson*.*Smaller Fasciculate Agaric.*

Series PRATELLA.

Subgenus HYPHOLOMA.¹

Spec. Char. AGARICUS FASCICULARIS. Gregarious, densely caespitose. Pileus from one inch to two inches broad, at first conic, then expanded, umbonate, subearnose, thick in the centre, more or less irregular from the tufted manner of growth, ochraceous tawny yellow, the margin thin, pale yellow, with portions of the veil adhering to it, often stained with the spores. Gills greenish, clouded, adnate with a decurrent tooth; spores dusky ferruginous, with a purplish tinge. Stem from two to nine inches long, two lines thick, curved, flexuous and unequal, hollow, fibrillose or squamulose, yellow, greenish above. Ring stained with the spores, which mark its place on the stem after itself has disappeared. Taste bitter and nauseous, subdeliquescent in wet weather.

AGARICUS fascicularis, *Hudson*, *Withering*, *Fries*, *Berkeley*.

Hab. Roots of trees, gate-posts, &c. From April till November.

Everybody must recognize this, the commonest of Agarics, haunting the purlieus of civilization, and preferring the decayed stump of a post, or similar artificially prepared site, to the "wild wood" which shelters and nurtures so many of its brethren. Not that sylvan habitats are utterly renounced by our intrusive friend, but it appears to like very open situations,—a bank surmounted by park paling, a gate-post, &c., and to shun the drip of trees.

Agaricus fascicularis is so named from its densely caespitose mode of growth, fasciculated, with many stems pressed and crowded or faggoted up together. Young groups are often very pretty, their woven veils partially giving way and showing the pale greenish gills, as yet unstained by the spores. *Agaricus lateritius* resembles very strongly our present subject, indeed, small fasciculate specimens of the larger species, and showy well-developed ones of the smaller, could scarcely be distinguished from each other, except by that certain test, the colour of the spores: in *A. lateritius* these are of a chalky dull purple, without any rusty tinge; in *A. fascicularis* a ferruginous shade is always present. This difference is very perceptible when a pileus of each kind has been reversed on glass, to deposit the dust from its gills. Both these closely-related Agarics are bitter, but *A. fascicularis* most unpleasantly so; whether possessing any medical virtue in right of this quality we do not know (and there are bitters enough beside), yet as a common production it might take the place of costly drugs, were its qualities ascertained to be useful.

¹ From $\epsilon\phi\eta$, a *web*, and $\lambda\omega\mu\alpha$, a *fringe*. Veil fugacious, woven, fixed to the margin of the pileus and stem. Stem firm, subsolid, distinct from the pileus. Pileus fleshy, convex, then plane. Gills adnate, close, subdeliquescent, caespitose, growing at the roots of trees, posts, &c.

The extraordinary manner in which the seeds of phænogamous plants lie dormant till some accident favours their germination has often been commented upon ; the sudden and rapid development also of plants which have been long stunted by circumstances unfavourable to their attaining a flourishing and blooming existence, and which left them in fact mere rudiments, just capable of being called into renewed life by the removal of these obstacles to their vigorous expansion, must have struck every observer of nature. When underwood is cut down, how the primroses enjoy the unwonted sunbeams which light up the nooks among old mossy stumps, where they nestle sheltered from the north-east treachery of March ! then the most elegant of all hyacinthine flowers, the common blue-bells, attain twice their usual dimensions, without losing an atom of bending grace, and replace, by a sheet of blue, the dank grasses and uncomely weeds and briars which formerly smothered them, encouraged in such tyrannous usurpation by the entangled dripping branches above. For a year or two beauty has the sway, and wild strawberries ripen ; then the hydra-heads begin to reassert their rights, and alder, and hazel, and ash-rods stand vigorously up, while the briar again catches our feet between the bushes ;—our rambles are over for a while, but there is less reason for regret since the pretty objects of them have shrunk away, and will lie in sad seclusion, almost dormant, till the woodman's axe comes, on the happy anniversary that shall give back life, liberty, and their turn of enjoyment to blue-bells and wild strawberries, anemones and primroses. The fungus tribes are frequently called into existence in the same hasty profusion as the flowering plants, evoked from the obscurity in which they have been lying, by those potent magicians, light, air, and rain.

A few years ago, towards the close of summer, in rambling through a tract of woodland which had been cut the previous season, a very peculiar and really beautiful spectacle presented itself ; never was wood so gay before, not with flowers, for their season was over, but—soften the supercilious smile, good reader—with Agarics ; Agarics all alike, all developed apparently pretty nearly on the same day, all rooting in the low stumps, in dense fascicles, bending forwards and downwards, their gracefully curved stems decked with rich pileuses of tawny, crimson, and gold. *Agaricus pomposus* indeed ! rightly did Bolton so entitle it ; for in colours it was gorgeous, and in profusion most wonderful ; such glory had not made those sloping glades gay for fourteen years, and might not again for fourteen more, as we suppose ; for the next two seasons, certainly, no display of the kind took place, and after that the copse was again impenetrable. This Agaric, however, was not our more humble subject given to-day, but its large, highly-coloured brother, *A. lateritius* (*A. pomposus* of Bolton) described in our first series.



P.R. del.

Reeve & Nichols imp.

Cantharellus crispus, Fries.

PLATE XVI.

CANTHARELLUS CRISPUS, *Fries*.*Crisped Chanterelle.*

Spec. Char. CANTHARELLUS CRISPUS. Pilcus infundibuliform, submembranaceous, undulated, crisped, floccoso-villous, brown-grey; hymenium pallid, nearly smooth; stem whitish, stuffed.

CANTHARELLUS (*Craterellus*) crispus, *Fries*.

———— sinuosus, *Berkeley*.

HELVELLA crispa, *Bulliard*.

———— floriformis, *Sowerby*.

Hab. In damp woods. Autumn. Rare.

While the fungus families were classed by mere external configuration and characters visible to the naked eye, this pretty delicate species was placed among the *Helvellas*; but the system of arrangement according to the peculiarities of the hymenium possessed by any given tribe, throws it among the *Chanterelles*. *Helvellaceous* funguses have the hymenium *superior* and consisting of *asci filled with sporidia*, as in *Morels*, *Verpas*, and the genuine *Helvellas*; but the *Cantharellus* is a branch of the *Agariciform* family, having the hymenium *inferior*, consisting of folds or plaits instead of gills, and *the spores are not packed in cylindrical cases*.

Fries has now divided the individuals formerly placed under *Cantharellus* itself into two classes; the first retaining such as he considers the true type of the genus, having strong folds like *Cantharellus cibarius*; the other including all those with a smooth or slightly rugose hymenium. These he calls *Craterellus*; and to that class our present subject belongs in the 'Epicrisis.' Although thinking it better to mention this, we have nevertheless adhered to the older name, being that of the 'English Flora'* volume, which is, or ought to be, in the hands of every student, while few have access to the other. Most of the *Craterellus* division are very scantily furnished with flesh; they are membranaceous, tough when dry, absorbing much water in wet weather; some are so deeply infundibuliform as to be quite pervious to the likewise hollow stem, thus forming a trumpet fit for *Oberon's* armed host. One (not English) smells of violets, but sweet scent is the exception, not the rule. "*Oridus*" stands as a charge against several; then national tastes differ, and those who habitually inhale tobacco-smoke, or improve bad brandy by a powerful addition of the rat-catcher's bait, anise, are not likely to agree with others who consider musk agreeable; *Craterellus*

* The fifth volume of Sir J. E. Smith's 'English Flora' (or vol. ii. of Hooker's 'British Flora'), comprising the Fungi, by the Rev. M. J. Berkeley, and which may be purchased separately.

sinuosus, of which our present *C. crispus* is a variety, is described as “olidus,” “moschatus.” Linnæus styled all funguses smelling of anise, “suaveolens.” In the present case the subject is scentless, so the relative agreeableness of odours does not affect its character.

It can scarcely be supposed, however, that powerful scents resembling nitric or prussic acid, or any other pungently offensive substance, can co-exist with pleasant flavour and with bland esculent qualities. Miss Mitford described the ancient village herbalist as saying of a plant he had detected, “it must be good for something, it has such a fine venomous smell.” Any one who has taken a few sniffs of bruised hemlock or *Solanum Dulcamara* will acknowledge the perfect propriety of his expression, and many a powerful drug is “venomously” valuable for physic;—but for food, that is quite another question. *C. crispus* may have properties akin to those of *Cetraria Islandica*, the rein-deer moss, or our own *Peltidea canina*, the once famed remedy of Dr. Mead for the bite of a mad dog, but we do not think it can be “esculent” in the common acceptation of the term.

How easily error may arise and be propagated is instanced in this example. Bulliard, copying Schæffer, classed our fungus erroneously as a *Helvella* (which we have shown it not to be), and Sowerby, following the high authority of his time, Bulliard, called it also *Helvella*, but adopted the trivial name of Schæffer, *floriformis*, instead of *crispa*, which had been given to it by Bulliard. Now here are three standard authorities, much more likely to be found in libraries than more modern ones, who consider the plant a *Helvella*! “All the *Helvellas* are esculent,” is asserted by a popular botanist and lecturer, probably with perfect correctness where true *Helvellas*¹ are concerned; but a friend of ours, meeting with a most copious crop of *C. crispus*, was going, in perfect faith, to make a dish of it, and quite disappointed when the treat in expectancy was forbidden—on the very just grounds, that the proposed subject of it was no *Helvella* at all, but a very questionable *Cantharellus*, a fact easily proved by the Flora volume, which had put the impostor into its proper place.

¹ There is a true *Helvella crispa*, which we mean hereafter to introduce to our friends.



F. R. del. Pierce & Nichols imp.

Boletus castaneus. Bull.

PLATE XVII.

BOLETUS CASTANEUS, *Bulliard*.*Chestnut Boletus.*

Spec. Char. BOLETUS CASTANEUS. Pileus three or four inches broad, convexo-expanded, at length depressed, but remaining broadly pulvinate in the centre, firm, subvillous or opaque-velvety, cinnamon-coloured, or chestnut inclining to brick-red. Flesh thick, white, stained beneath the epidermis with the colour of the pileus, not changing colour, viscid, insipid. Tubes free, not reaching to the margin, short, round, white, changing to dingy yellow. Spores white. Stem at first stuffed, then hollow, sub-bulbous, attenuated upwards, sometimes swollen in the middle, more rarely nearly equal, and lengthened.

BOLETUS castaneus, *Bulliard, Fries, Berkeley, Persoon.*

Hab. In woodland pastures, parks, &c. Not common.

It is always pleasant to find rare objects in our researches, otherwise there is no great reason for regret that this *Boletus* is not often met with. Mr. Berkeley cites only one habitat, his own parish in Northamptonshire; Miss F. Reed found the specimens from which her drawing was taken at Brill, under old Scotch pines; and Mrs. Hussey once detected a few in the rectory-field at Hayes, but unfortunately much decomposed; the spores, however, lay thick on the grass beneath each faded pileus, so as to afford evidence that if not *pure* white, as Fries supposes them to be, they are as nearly so as justifies placing them under *Leucosporus*. Several Agarics, as *A. deliciosus* and some Russulas, have ochraceous spores, but they are not, therefore, rejected from the natural group with which other general features identify them.

B. castaneus has a velvet coat, but may be known from the members of the subtomentose family by not turning blue and green when cut, as they do. It resembles in colouring and configuration *B. granulatus*, but that otherwise beautiful fungus is veiled in slime! not a pleasant veil to finger; but it disappears, and drops of sweet milk exude from the margin of the pileus when bruised or broken, standing like pearls on the lemon-coloured tubes, then hardening into minute cheeses, from which dried grains comes its name *granulatus*. This *Boletus granulatus* has ochraceo-ferruginous spores, which darken the yellow under-surface in age; it is esulent, and abundantly gregarious under a group of old Scotch pines growing on the ancient camp at Keston. There are but two or three English Boletuses which are not to be found in this immediate neighbourhood, and those, *B. strobilaceus* and *B. cyanescens*, we never expect, from their extreme rarity, to be so fortunate as to encounter; both these belong to the same subdivision (*Leucosporus*) as our poor *B. castaneus*, which we have left, to speak of others; but then there is so little to say about it: neither gifted with qualities which recommend uglier relatives to every one possessing a palate, nor afflicted with such as cause torments to the unwary, "it is rare" is the one point in favour of bringing it forward.

Some of Mrs. Hussey's friends hint that she either *invents* the things she represents, which would be supposing a talent far beyond painting correctly real objects, or that she must practise some ingenious witchcraft to obtain her Mycological treasures ; that fairy-rings appear in the magic circles of her incantations, and toadstools spring wherever her foot touches the ground. The questionable virtue of such endowments must be disclaimed, or who would tolerate her rambles through their domains ? Alas ! as it is, the spirit of Liebig is abroad, and many a favourite haunt has been pared and burned, while the once most prolific of all lies doing penance in a white sheet—of chalk.

It is an evidence how necessary it is to awaken attention to objects, that many an eye which is caught by a *flower* does not see a *fungus*. Where do you find all these things ? a question constantly asked, is easily answered—Everywhere. If made subjects of study or attention, you too, my worthy friend, will find many things you never *saw* before ; and when the true character of others, *despised if seen* heretofore, is pointed out, surprise and delight, and veneration for the creative energy which clothes everything with a beauty befitting to itself, will take the place of neglect or complaint. Mouldiness, and mildews, and blights, when viewed by that invaluable aid to finite eyes, the microscope, become forests of crystal stems and branches, tasselled with pearls (*Penicillium crustatum*), or slender pillars like threads of spun glass, surmounted by lamp-like globes containing dark spores (*Mucor mucedo*), or bright yellow eggs lying in nests of brown moss (*Eurotium herbariorum*). Aladdin's garden appears where before was only blue and yellow mouldiness ; if the preserves are spoiled we have only ourselves to blame, not the exquisite parasites that are feeding and flourishing upon them. When we find this, that nothing can be lovelier than some of these pests repudiated by every housekeeper, we cannot suppose that they were intended merely as domestic scourges for the uncleanly, or retributions for the stingy, punishments for neglected corners or stale bread and ill-made jam ! So much beauty needed not to have been wasted, merely for this end ; surely it points out that man is bound to improve his natural faculties, to enable himself to appreciate the glory and the loveliness of those things which are around him, in which the unassisted eye and untutored judgment find only subject for disgust.



F.R. del

R. & N. Nichols. imp.

Agaricus domesticus, Bolton.

PLATE XVIII.

AGARICUS DOMESTICUS, *Bolton*.*House Agaric.*

Series PRATELLA.

Subgenus COPRINUS.

Spec. Char. AGARICUS DOMESTICUS. Pileus not membranaceous, but slightly fleshy, thin, ovato-campanulate, then expanded, two inches broad, obtusely umbonate, undulato-sulcate, squamulose, furfuraceous, fuliginous, the apex reddish-brown, the disc ochraceous or nearly white. Gills adfixed, close, linear, white when young, then ruddy, at length brown-black from the spores. Stem silky white, two or three inches high, attenuated upwards, often from a broad nodose base by which it attaches itself to various substances, as stone steps, &c.

AGARICUS DOMESTICUS, *Bolton, Fries, Berkeley, Persoon.*

Hab. In cellars, damp kitchens, vaults, on decaying wood. Rare; handsome in the solitary form.

This pretty Agaric is one of the most delicate and "touchable" among the *Coprini*; it is less ephemeral than its nearest relatives; we watched, during a fortnight, the daily development of some fine specimens, growing on a log of rotten wood in a damp cupboard; from the time that the spores first tinted the gills till decay commenced was five days, and even then the Agarics did not deliquesce and run off in moisture as those of the same family growing in the soil or dung do. These specimens were tufted from a common centre, the crevice in the wood, therefore had no bulbous excrescence at the base. It will be observed that those which sat for the portrait, growing on a hard horizontal surface (the cellar steps at Tingewick), have the base much extended in a nodose ring; they also deliquesced sooner in that damp situation. Our Hayes friends, produced in perfect darkness, were white, only acquiring a slight tinge of umber upon the scales, after being brought into day. The texture of the pileus was more floccose than is usually the case, and till the spores ripened they greatly resembled some of the smaller *Lepiotes*. When, however, the blackish-brown dust had appeared upon the gills, which acquired a red tinge in course of expansion, we hope our least learned pupil must have known that the stranger could not belong to any subgenus of *Leucosporus*.

Some of the nearly allied members of the *Coprinus* family are as pretty as *A. domesticus*, even more so, in their fragile, transparent beauty. Ephemeral as an insect may be, and named from its life of a day, it lives twenty hours out of the twenty-four longer than *Agaricus radiatus*, which shrinks into a state of collapse as soon as the sun's rays touch upon it, and is destroyed by a breath, leaving only a slight black film on the fingers, or attached to the filiform stem. *A. plicatilis* is almost as evanescent, and *A. ephemerus* speaks for itself. The latter is very beautiful; the pileus is striate, bluish-grey, with an umber apex,

the margin splits and rolls back, showing the black gills beneath like stripes on the grey ground ; it might be mistaken for a flower with revolute petals, rejoicing to open its heart to the rays of the genial morning sun ; but, alas for the shrinking Agaric ! they are fatal to its moist beauty, which soon is only represented by a deliquescent and, many would say, *dirty* little fright : but we know that there is no such thing as *dirt*, in its true sense, connected with these vegetable juices ; they are only inky ; and who that writes will acknowledge ink to be dirt ? unless to draw a nice distinction made by an indulgent nurse-maid—"Well, it's only a little *clean dirt* !" After this, it seems contradictory to say that, in a clean house, we need not dread the apparition of "toadstools." *Agaricus domesticus* does not scare careful housemaids ; it must be the slut's own Agaric. "Under carpets on damp floors," "on old matting thrown in a corner," "in a basket that held tea-leaves," such are the habitats pointed out ; the cellar steps and store-billet cupboard are not in the range of that vigilant functionary who wields the broom under the flag of the duster ! flag before which bookworms *et hoc genus omne* tremble ! Walter Scott's Antiquary is not the solitary victim of "tidiness," albeit his troubles have had the good fortune to yield so much amusement to the world at large. "As soon as master is away for a day or two, we will have a good turn-out of that library." "Is it possible, madam, one of your myrmidons announced this unproved ? Did you never hear that wives were burned formerly for *petty treason* ?" "Yes ; but then think of *Agaricus domesticus*, of *Thelephora puteana*, which spreads on the wall behind the books ; look at this pot of paste, a rich forest of moulds, wafted in embryo about the house by every breath !" The housemaid has *right* on her side, and it ought to prevail against *might*, so she may purify the "lion's den" if she does not mind the risk of his growl, which follows on any atom of property not being replaced again exactly *in situ*. Seriously speaking, however, it is very easy to train any intelligent servant into these duties ; the days are gone by when an industrious damsel in the country boiled her master's antique bronzes in a copperful of strong ley, that "for once they might look bright !" A fact only proving how ideas differ as to what is "dirt."



F. R. del



Reeve & Nichols imp

Agaricus ostreatus, Jacquin.

PLATE XIX.

AGARICUS OSTREATUS, *Jacquin*.*Oyster Agaric.*

Series LEUCOSPORUS.

Subgenus PLEUROPUS.

Spec. Char. AGARICUS OSTREATUS. Cæspitose, imbricated, frequently confluent, generally subdimidiate, excentric, conchate, ascending. Pileus fleshy, cinereous-grey growing pallid, smooth, but the border is at first fibrillose or even squamoso-lacerate; margin involute; the whole surface of the pileus is at first soft and clammy, afterwards dry, shining, and satiny. Gills decurrent, broad, here and there forked, rather distant, anastomosing behind, whitish. Spores perfectly white. Stem abbreviated or obsolete, elastic, firm, white, smooth, sublateral, often irregularly confluent, stuffed, compact, tuberous or equal, strigose at the base, where it is generally downy; flesh white, tender when young, succulent, flavour sweet, odour farinaceous. Edible.

AGARICUS ostreatus, *Jacquin*, *Fries*, *Krombholz*, *Berkeley*.

La Cuiller des Arbres, *Paulet*.

Hab. On various trees; on the trunk of an apple-tree at Hayes. Enduring from autumn through the winter till spring, but never freshly developed at that season.

A comparison between this Plate and Plate LXXV. of the First Series, *A. euosmus*, will show how much they differ in externals when characteristic specimens are selected; juvenile, dimidiate or imbricately stunted individuals may be confounded with each other, if general appearance only is relied upon; but *A. euosmus* is scented like Tarragon and its spores are pale lilac; *A. ostreatus* has the smell of new flour which distinguishes the *Prunuloidea*, and perfectly white spores. It is a favourite article for the table on the continent, opinion being universally in its favour, while *A. euosmus* is tough and disagreeable. This latter has a disposition to a regularly depressed, trumpet-formed pileus, "*La conche des arbres*" (*Paulet*), never being spathulate; while the genuine *A. ostreatus*, concave beneath, and always more or less dimidiate, when the stem is present assumes the shape of a spoon of the antique "postle-spoon" pattern, which occasioned *Paulet* to call it "*La cuiller des arbres*." *Paulet*, wishing to write a book which should enable the vulgar and illiterate to discriminate funguses as a marketable article of value (numbers of people being annually poisoned in Paris alone by using unwholesome ones), refused to use botanical names, or to avail himself in any way of scientific terms, so that while the Mycologist complains of uncertainty and undervalues his authority, the price of the book (it sells for ten guineas) prevents its being, as the author intended, "*à portée de tout le monde*," and it is comparatively of no service to anybody; never-

theless his names are useful in this case, being really graphic, and the great labour and research evidenced by the tables of synonyms make us regret that his ability to draw up a valuable work was not differently exerted. Some of his figures of the various forms of "*Oreilles des arbres*" are very good; his *Corne d'Abondance* is certainly our tarragon-scented *A. euosmus*, and he considers it identical with *A. aromaticus* of Scopoli, which is probably correct, but we have not verified this synonym. It is always a spring production, while *A. ostreatus* is as invariably autumnal.

It is impossible to guess what mistakes *may be* made in the attempt to discriminate any given Agaric; therefore we must content ourselves with pointing out such as *have been*. In the case of *A. euosmus* we have already done it. *A. dryinus* has likewise been taken for *A. ostreatus*; this is a rare species, and we shall shortly place good portraits before the student, but in the meantime may observe that it has at first a universal veil, the remains of which form soft brown scales on the pileus, and hang in white fragments from the margin; the flesh turns yellow when bruised, which *A. ostreatus* never does, while the latter, being destitute of a veil, has the pileus quite smooth, shining, and satiny when dry. *Agaricus ulmarius* has emarginate gills. *Agaricus palmatus* is gluey, so that the mass is fastened together by the sticky substance, whereas *A. ostreatus*, though of rather a clammy texture when moist, is never viscid. In *Agaricus salignus* the gills do not run down the stem and the concavity is the other way, the under-surface being convex.

Various trees are cited as producing *A. ostreatus*, but our experience confines it to the apple, a wood apparently not favourable to fungus growths in general. Whether, in many of the cases in which other trees have produced "ears," those supposed to be *A. ostreatus* were really something else, we cannot positively *decide*, but may be allowed to *suspect*; little danger, however, is to be dreaded from mistake, for the greater number of this class are innoxious. Persoon recommends all mentioned above as similar in quality to the genuine fungus. Vittadini advises boiling *A. ostreatus* in water to soften its substance before further proceedings, and then to use only young ones. Most assuredly the whole of this section are indigestible.



A. M. H. del.

Reeve & Nichols. imp.

Agaricus maculatus Alb. & Schw.

PLATE XX.

AGARICUS MACULATUS, *Albertini and Schweinitz*.*Spotted Agaric.*

Series LEUCOSPORUS.

Subgenus CHONDROPODES.¹

Spec. Char. AGARICUS MACULATUS. Pileus from two to four inches broad, fleshy, rather compact, at first convex with an involute margin, then plane or obtusely umbonate, the margin often repand; dry, white, here and there stained with rufous, at length altogether dull buff and rufous. Gills free, very close, narrow, linear, white. *Spores ochraceous*. Stem from three to four inches high, from a quarter to half an inch thick, stout, with a cartilaginous bark, striate, stuffed, more or less ventricose, attenuated below, when growing among moss, elongated, nearly equal, præmorse, supporting itself by cottony fibres. Smell and flavour slightly acidulous.

AGARICUS maculatus, *Albertini and Schweinitz, Fries, Berkeley.*

Hab. In fir plantations. On the open part of Hayes Common among ling (*Calluna vulgaris*). Rare. Early autumn.

Agaricus maculatus is rare; there are two types of it, one the present subject, the other coarser and larger, deeper in colour, by no means so pretty or pure-looking; it is found among fir-trees. It is not esculent, and acquires in drying an acid unpleasant scent; ours grows in a dense ring among fern and ling, but not under trees.

That our immediate neighbourhood is singularly prolific in these growths there can be no doubt, and several reasons conduce to render it so. In the first place, lying at the edge of the great London basin, where the chalk begins to appear, the soil consists of all the species of detritus the various strata above can afford; sand, gravel, clay, peat, chalk, hazel-loam,—in fact, a very mixed alluvium is deposited in the valleys, among the rounded, wave-washed outliers of chalk. These valleys have been cultivated from very ancient times, and the hills used as sheep-walks, but the barren dunes of gravel which form the high ground of Keston Heath and Hayes Common were allowed to remain untouched, their aged pollard-oaks affording fuel to a district where coal was scarcely attainable till within the last fifty years. Now the dear old oaks are no longer dismembered, and have nearly forgotten the operation, but doubtless we are indebted for the abundance of *Fistulina hepatica*, *Polyporus quercinus*, &c., which they yield, to their having been once so mutilated, while the intact, undisturbed mossy banks and fern-shadowed dells at their feet are gemmed, or disgraced, take it as you please, by a great proportion of those Agarics, Boletuses, Clavarias, &c., the gipsies of botany, unteachable, irreclaimable, who love a soft bed of moss and the fragrance of

¹ From *χόνδρος*, *cartilage*, and *πούς*, a *foot*. Pileus tough, dry. Gills nearly free, close, white. External coat of the stem subcartilaginous.

wild thyme and strawberry blossoms ; where the rabbit swings round, enjoying all the delights of "free-warren," and the lark leaves her eggs to the care of the morning sunbeams, while she soars to greet them ; these old sunny root-banks, for the foliage of the hollow trunks is too thin to keep his rays from slanting through, are haunted by other pretty things beside—the *Anguis fragilis*, or blind-worm, and that most delicate of lizards, *Lacerta agilis*, often startle us as they disappear among the fern-stems.

A little further on, where the clay of the basin heads up the water from the higher ground, deep cool habitats are formed in thick coppice-wood, nurturing another large class, those funguses which prefer decaying vegetation and dank herbage to pure air and sweet breezes ; here, in warm summer days, the grey-snake lies at full length, hoping you will mistake him for a dead stick, as you may ; and the adder retires stealthily away from the botanizing foot, not springing at the intruder unless his escape is barred. We candidly confess that, although a basket-full of treasures from Barnet Wood is most acceptable, we would much rather receive it from other hands than seek for ourselves in that locality, for amongst all the living things we love snakes are assuredly not included.

The high grounds of the district are almost Alpine in climate, the low grounds marshy and foggy, but mild in that respect ; several Phænogamous plants are found, of which Yorkshire and that portion of England are the usual habitats ; yet we also had, till the Covent Garden folk found them out, many Orchises which delight in the warm chalk valleys of southern Kent.



F. R. del. R. R. & Nichols imp.

Cantharellus lutescens Persoon.

PLATE XXI.

CANTHARELLUS LUTESCENS, *Greville*.*Yellowish Chanterelle.*

Gen. Char. Pileus furnished below with dichotomous, radiating, branched, subparallel folds, not separable from the flesh, sometimes anastomosing or obsolete.¹

Spec. Char. CANTHARELLUS LUTESCENS. Pileus from an inch to three inches broad, depressed, at length infundibuliform, not pervious, submembranaceous, undulated, floecose, yellowish livid brown; veins decurrent, anastomosing, flexuous, yellow, flesh-coloured, or salmon-coloured. Stem from two to three inches high, from two to three lines thick, yellow or reddish, hollow, unequal.

CANTHARELLUS lutescens, *Greville, Berkeley.*

Hab. Moist situations in pine woods. Summer and autumn. Rare. Near Edinburgh, *Dr. Greville*. Avington, Hants, *Miss E. Reed*.

It would be scarcely fair to hold up the present Chanterelle to the reproach of the world as poisonous, although certainly suspicion attaches to it. The difficulty of identifying the precise species described by Persoon or Bulliard makes us hesitate as to any further synonyms than those we have given. But if the Mycologist feels disappointed at the imperfect settlement of a vexed question, the gastronomist need not do so; he is in nowise concerned with our puzzle, his safe and pleasant *Cantharellus cibarius* is satisfactorily different from its rare, but doubtful cousin. What the older authors meant by "*Merulius*" or "*Helvella*" *lutescens*, whether it be truly a *Cantharellus*, or, more strictly, according to the arrangement of Fries, a *Craterellus*, may break the slumbers of the botanist, but cannot spoil the peace of the bon-vivant, who after eating plentifully of the *genuine Chanterelle* feels, according to Paulet, much "the lighter and gayer" for the feat! Sweet apricot-scented, solid but succulent, white-fleshed, sapid and nutritive "Gallinaccio," those organs, whether of taste, smell, or sight, must be lamentably defective which can confound you with congeners differing in all respects, except that they wear yellow in their costume! It is with the yellowest of these, *Cantharellus aurantiacus*, that our present subject is more likely to be confused, than with the esculent variety. There is, however, one test which may be safely appealed to, when other parti-

¹ Named from *κάνθαρος*, a *vase* or *cup*; the pileus being often so formed.

culars are obscure ; that is, the composition of the stem, which in *C. aurantiacus* is substantially stuffed, in *C. lutescens* tubular, even in youth. This may appear a trifling matter to guide the judgment, but as it is a constant difference between them, not a casual one, it suffices. We must be understood, however, as speaking of both species in their prime, and not when the texture and configuration have lost all character in decay. Fries makes subdivisions of those *Cantharelluses* with *fleshy* and those with *tubular stems* ; in England we have but two species under the first head, *C. cibarius* and *C. aurantiacus*, and we may dismiss them, having pointed out the fact that our present subject, *C. lutescens*, comes under the second, those with tubular stems. Among these, its more immediate kindred, *C. tubæformis* is the only one likely to be taken for it, indeed Fries places *C. lutescens* as a variety of *C. tubæformis* ; the latter has cinereous-yellow, straight folds, and, although rare in South Britain, is not quite so much so as the other ; it is stated by Fries to be "caespitose on rotten wood," as well as on the ground. Our yellowish friend grew in a plantation, but whether there was decayed wood beneath the soil we cannot say, the fungus certainly did not spring immediately from it if there were. All the species of *Cantharellus* have beauty ; their form is often very elegant, and the gluten, which sometimes renders the pileus of an Agaric or Boletus repulsive, is not found on them. All the family have white spores, in the case of *C. cibarius* with a creamy tint.



A.M.H. del

Rose & Nichols. imp

Agaricus sublanatus, Sowerby.

PLATE XXII.

AGARICUS SUBLANATUS, *Sowerby*.Series CORTINARIA.¹Subgenus INOLOMA.²

Spec. Char. AGARICUS SUBLANATUS. Pileus from three to four inches broad, fleshy, "at first obtusely campanulate, at length very broadly and obtusely umbonate" (Sow.), convex, never fully expanded so as to become plane; colour variable, yellowish-brown of different shades of intensity, inclining to red or ferruginous, squamules pilose, innate, or silky adpressed, "brownish, reddish, or *white*" (?) (Sow.). Veil reddish, forming upon the stem a peculiar hose, with several dark engulations. Gills sub-adsuate or emarginate in the same Agaric, very irregular, waved and broadly notched, pallid yellowish, at length cinnamon. Spores reddish-ochre. Stem "bulbous, conico-elongate" (Fries), about three inches high, squamulose, yellowish, pallid, white at the summits. Not bitter nor smelling of radishes, but like mushrooms.

AGARICUS sublanatus, *Sowerby*, *Fries*, *Berkeley*.

Hab. In Hampstead Wood, *Sowerby*. In Holwood, Kent, under birches, *Mrs. Hussey*. Very rare.

From the time that Sowerby described this handsome Agaric till Mrs. Hussey found it at Holwood, it had not been noticed by any mycologist. Mr. Berkeley recognized the Kentish specimens as that author's *A. sublanatus*, or their identity might have appeared doubtful, for there are several minor discrepancies. The name *sublanatus* is not very appropriate, unless Sowerby intended to apply "*sub*" as meaning "below," in allusion to the stem; our specimens had the pileus smooth, merely with "silky, closely adpressed, reddish, pilose squamules," and the margin was bordered with minute whitish down, "*sublanatus*" certainly did not apply to that; his figure represents a much more umbonate and shaggy pileus than ours had.

Enjoying an opportunity of studying this interesting species *in situ* for two successive seasons, our portrait exactly represents it, as a native of an open site, in a park, immediately under a scantily-foliaged birch-tree; the soil a bank of gravel. In Hampstead Wood the development was probably much more luxuriant, and the shagginess of a fungus is always a variable point not affecting the essential character; configuration is, however, a different matter, and we never saw an example with the pileus so much expanded as in Sowerby's drawing, nor with the slightest approach to the umbo he gives it. The stem is

¹ From *cortina*, a *veil*. Spores reddish-ochre. Veil arachnoid.

² From *iv*, a *fibre*, and *λωμα*, a *fringe*. Veil fugacious, marginal, consisting of free, arachnoid threads. Stem solid, bulbous, fibrillose, more or less diffused into the pileus, fleshy. Pileus fleshy, convex when young, then expanded, fibrillose or viscid, regular. Substance juicy. Gills emarginato-adnexed, broad, changing colour. Large autumnal fungi growing on the ground.

very peculiar and can scarcely admit of mistake; it is liberally holed in the remains of the veil, closely drawn in, adpressed to it in several distinct bands. "*Velum fuscum* passim cingulatum" (Fries). The arachnoid veil would seem to consist of two parts, the outer one reddish, more densely woven, cracking into dark eingulations by the elongation of the stem. The inner portion remaining attached to the margin of the pileus and ring-circle of the stem in the form of delicate white threads; very slight traces of this inner cortinarius covering ultimately remain round the border of the pileus, giving the appearance of a pallid zone above the extreme margin. It is not glutinous, although in wet weather it appears to be so. In groups of eight or ten, the bright yellow caps close together, it is a very showy handsome Agaric, but in that case seldom regularly shaped, owing to the compression of some by others; but where a solitary individual has room for display, its elegance and beauty are striking. In 1849, several patches, more than a foot across, and consisting, on an average, of ten individuals, occupied a few square yards, taking a tolerably regular circular arrangement; we helped ourselves liberally, and perhaps the disturbance of the ground prevented the next season's growth being equally luxuriant; whether it was so, or the season itself unpropitious (which it was to most fungus growths), in 1850 our Agarics had dwindled sadly. We shall find them no more; the site has been carefully weeded, the bushes, which bore the most delicious blackberries weary botanist ever feasted upon, are eradicated, and the whole thickly chalked; doubtless the sheep were looking on with great admiration at operations which would ensure their fleeces from thorns, and give them a sweeter bite, but we turned aside and grieved over our *A. sublanatus*—over splendid examples of the true *A. necator*, which we always were going to depict, but prettier things would press before them—over "*Hygrophorus leporinus*" (Fries), with its anomalous ruddy spores, which, new to England, grew close by, and will never grow again, and we had not painted it because a well-meaning companion, exclaiming "Nothing but *pratensis*!" threw it away. If all that we have longed to portray had been executed! But, alas! who ever performed all they designed and desired?



A. M. H. del.

From a sketch by

Lycopodium caelatum, Bulliard

PLATE XXIII.

LYCOPERDON CÆLATUM, *Bulliard*.*Embossed Puff-ball.*

Subgenus LYCOPERDON.

Gen. Char. Peridium membranaceous, with an adnate subpersistent bark; within, furnished at the base with a spongy sterile stratum. Capillitium unequal.

Spec. Char. LYCOPERDON CÆLATUM. Peridium usually not more than from three to six inches across, occasionally much larger; collapsing above, obtuse, apex dehiscent, at length open and cup-shaped; barren stratum cellular; internal peridium distinct from the nearly free, collapsing capillitium. Spores yellowish olive-green. Remarkable for its spongy, blunt, obconic base, above which the cavity is sublenticular. In consequence of the simple orifice, the mass of flocci and spores does not fall out, but collapses, until, by decay, the upper part of the fungus is completely broken up; the odour is then very offensive. Not esculent.

LYCOPERDON CÆLATUM, *Bulliard, Fries, Berkeley.*

Hab. Not common. Hayes, of small dimensions, on the open heath. In Devon, as large as *Lycoperdon giganteum*, in pasture ground.

Bulliard's figures of this Puff-ball, so handsome when not advanced beyond maturity, are most excellent; they cannot admit of mistake. The peculiar outer coat of the peridium breaks into small polygonal portions, nearly regular in size and shape; these, by the continued expansion of the Puff-ball, become isolated, continuing opaque and densest in their central point, to which the marginal parts converge in ribs, so that each resembles a tiny flattened limpet-shell; the spaces between consisting merely of the inner membrane composing the sac, which is very fragile, tender, and easily ruptured. As fast as the spores ripen they show through it, then break through it, more immediately round the apex, where openings are irregularly formed; then the central portion collapses, falls in, decays, and the contents gradually ooze away in the form of a yellowish-olive fœtid mud, in which the spores are involved, while the base of the receptacle remains long after, and might be easily mistaken for a decaying *Peziza*.

Lycoperdon giganteum breaks into large polygons occasionally, when the growth has been too rapid for the strength of the enclosing sac; but the deep fissures into the substance of the ball are very different from the cuticular cracking of *L. cœlatum*: this latter fungus is at no period smooth—in youth it has

¹ From γαστήρ, the belly, and μυκήs, a fungus. Hymenium included within the uteriform excipulum.

² From θρίξ, a hair, and γαστήρ, the belly. At first fleshy.

powdery warts, as in *L. gemmatum*, each of which becomes eventually an embossed scale; while the giant of the tribe wears a surtout of the smoothest kid-leather. The commoner Lycoperdons, *gemmatum*, *pyriforme*, &c., have a warty surface, but it never resembles the mature "sculptured," "ciselé," development of *L. calatum*; they have besides more or less prominent mouths at the apex.

This is not one of the Lycoperdons to be recommended for the table; our courageous friend Dr. Badham ventured on some pretty juvenile specimens, such as would have made an excellent *frittura* if the ordinary little puffs had been the subjects of it, but these tasted "fishy," so that not a sufficient quantity was eaten to test their salubrity. It may be as well to mention that those "ordinary little puffs," however, are not Lycoperdons at all, but Bovistas, of which there are two English species, *B. nigrescens* and *B. plumbea*, neither of them rare in dry pastures and on heaths, and both esculent. The genus *Bovista*, as modernly arranged, differs from *Lycoperdon* in being altogether fertile within, while there is always a spongy barren stratum forming a base, more or less persistent in the Lycoperdons. We have only once found our "embossed" friend in this neighbourhood: it is surprising how it could have thrust up its soft tender head among hard-bound gravel and sharp fragments of flint, a rude soil, covered with arenarias and the tiniest attempts at sheep's sorrel (*Rumex Acetosella*); no wonder the site cramped its growth. One was found by a friend in Devon as large as a man's head—but this was a monster.



F R del

Vincent Brooks lith

Agaricus rutilus, Schaeffer

PLATE XXIV.

AGARICUS RUTILUS, *Schæffer*.

Purplish-red Agaric.

Series PRATELLA.

Subgenus GOMPHUS.¹

Spec. Char. AGARICUS RUTILUS. Pileus from two to three inches broad, top-shaped, umbonate, sub-viscous, brown-red, sometimes yellowish in the centre, the margin liver-coloured, shining. Gills decurrent, somewhat branched, thick, firm, elastic, entire, the shorter connected with the longer, purple-umber till discoloured by the snuff-coloured spores. Stem from two to four inches high, from half to three-quarters of an inch thick, rhubarb-coloured without and within, fibrillose, attenuated below, firm, solid, slimy from the remains of the veil which form an obsolete filamentous ring.

AGARICUS rutilus, *Schæffer, Sowerby, Berkeley.*

—— gomphus, *Persoon.*

GOMPHUS viscidus, *Fries.*

Hab. Scotch pine-woods; not uncommon.

Fries considers the three funguses, which with their two sub-varieties form his section *Gomphidius*, as exactly intermediate between the Agarics and the Cantharelluses; but it is not our intention to force upon the general reader those more abstruse botanical distinctions which can only interest the mere mycologist; a *Gomphus* is to all intents and purposes an Agaric with dark spores, and of the family two are English, including one sub-species, the pretty rose-coloured variety of *A. glutinosus*.

A. rutilus is a bold handsome fungus, generally very abundant where it grows at all, which is invariably under Scotch firs, in the late summer and early autumnal months; by "solitary" it is not meant that an Agaric grows isolated from its congeners, but singly as regards itself, not tufted or united by the stems with others. It is very persistent for an Agaric, often remaining on dry sites, in the shape of a rigid mummy, retaining all its character, and easily recognizable even in winter; but in damp places, a parasitic growth almost always infests the gills, and destroys the plant. This dusty mould is of a greenish-grey colour, and pervades the whole under-surface of the pileus in a smooth coating, as the natural spores would do; indeed it has been mistaken for them; but their colour is totally different, snuffy-brown. A metamorphosis

¹ From γόμφος, a wedge. Gills strongly decurrent, branched, distant, distinct, changing colour, persistent, quite entire. Veil universal, glutinous, concrete. Stem firm, solid. Pileus fleshy, turbinate, viscid, smooth, margin inflexed. Spores dark, analogons to *Limacium*. Large, solitary, persistent fungi growing on the ground.

equally calculated to mislead inexperience sometimes takes place in other funguses, particularly in various species of *Boletus*: we have seen *B. scaber* clothed entirely in white velvet, and other kinds with their tubes so completely occupied by the brilliant *Sepedonium chrysospermum* that difficulty arose in convincing a cursory observer, albeit one of our highest authorities so far as phænogamous plants are concerned, that this was only the usurpation of a destroying agency. It is an admirable provision of nature, which thus clothes the unseemliness of decay in new beauty; converting that which has lost all attraction into a nidus for fresh productions, and these perhaps still more exquisite in design and development, in wonderful finish and minute detail, than the original plant which by its juices nurtured them. Many mildews and blights are very pretty microscopic objects, and some lessons of value may be learned from the study of them; for instance, that they have characters so distinctive, that although we grant them to be pests, they are no more convertible into one another than gooseberry caterpillars into snails. The Berberry cannot communicate its own specific diseases to corn; *Æcidium berberidis*, a beautiful vase built up of yellow spores, forming distinct spots on the leaves, or *Erysiphe penicillata*, a white net-work investing them and supporting many little balls (*peridiola*), which to the naked eye appears like mealy powder thrown over the shrub, does not attack corn in the totally different forms the blights of that useful plant assume, *Smut*, *Uredo segetum* or *Uredo caries*, *Bunt*. So, ploughman, spare those elegant bushes of Berberry, they have never injured your crops, and never will; if you shake your head, setting up "old experience" against modern theory, look through our magic lens, and be convinced. We have thus cured one gardener more firm in his faith in ancient prejudices than any person we ever knew, and who, although in true Kentish spirit he still retains some he would go to the stake for, holds very enlightened notions on blights, dry-rot, and potato-disease.

Is *Agaricus rutilus* good for anything? Probably not, according to the vulgar idea, that is, good for man, any more than the lovely minute funguses we have mentioned; but all feed insects.



PLATE XXV.

BOLETUS ÆSTIVALIS, *Fries*.*Summer Boletus.*

Spec. Char. B. ÆSTIVALIS. Extremely large and robust, the example given measuring twenty-four inches round the margin of the cap, and seven inches and a half round the stem. Pileus pulvinate, obtuse, the epidermis smooth, soft, silky, opaque, olivaceous-buff, pallescent in dry weather when young, afterwards darker; sometimes channelled, but *not cracking in an areolated manner*. Flesh pure white, *not reddish* beneath the epidermis, tinged with yellow near the tubes, never acquiring a blue or green tinge at any period. Tubes small, the pores scarcely visible in youth, pallid whitish, then lemon-coloured, at length olive and moderately large, elongate, equal, subdecurrent. Stem stout, subconic or bulbous, smooth, not reticulated; the upper portion always remaining pure clear yellow, the lower stained with crimson cinctures. Esculent.

BOLETUS æstivalis, *Fries, Berkeley (MSS.)*.

TUBIPORUS æstivalis, *Paulet*.

BOLETUS Cepa, *Thore*.

Hab. In the woods of southern and western Europe, from May to July. Found by Miss F. Reed, in Hants.

This, according to Paulet, is among the most fragrant and delicious, as assuredly it is among the largest, of the Boletus tribe. It has, however, been a stranger to the British mycologist hitherto; even Fries had never seen it when he drew up its character for the 'Epicrisis;' but by a curious coincidence he sent distinctive sketches of both *B. æstivalis* and *B. impolitus* to Mr. Berkeley during the period that our drawing was in the hands of that gentleman for examination, thereby enabling our British authority to pronounce positively upon the identity of the species.

It is astonishing, that while, in proportion to the number of known funguses, Great Britain is extremely rich, in students of them she has hitherto fallen sadly behind; and so little interesting to the generality of her sons and daughters are these productions given by Nature with a liberal and beneficent hand, that to inspire a more general taste for this branch of botany is apparently a hopeless task. Some may worship Flora, others revere Ceres and rejoice in Pomona, but to what goddess of woods and fields shall we dedicate Mycology? what umbrage-screened dryad or dewy-buskin'd nymph will protect and bring into fashion the useful and beautiful among the fungus tribes? The fairies had the glory of the green rings ascribed to them, but the fairies are gone now, and few would care if they had not left the Agarics behind them.

Once, in the days
Of earth's sweet prime,
The mountain fays
Enjoyed our clime,—

On soft deer-grass,
By shady tree,
Would lightly pass
In revelry.

The sun's bright trace
In western sky
Revealed the grace
Quick glancing by,
While nightingales,
Dense woods among,
Filled all the vales
With rival song ;
And odours sweet,
From dewy flowers,
Made incense meet
For holy hours.
O mortal blest
On calm May night,
When shone confest
So fair a sight !
But mortal eye
May never more
Those fays espy
On earthly shore ;

Though nightingales
Still pour sweet song
As dewy vales
We stray along ;
We find the place
They loved of yore,
Their footsteps trace,
But see no more
The Dryads fair
Of whom bards sing,
Though greenest there
The fairies' ring.

But where they shook their
Wings while daucing
We now find bright
Sham pinions glancing.



A. M. H. del.

Pease & Nichols. sculp.

Boletus luridus, var. *Fries*

PLATE XXVI.

BOLETUS LURIDUS, var., *Schæffer*.*Lurid Boletus*.

Spec. Char. B. LURIDUS, var. Pileus at first convex, nearly hemispherical, at length completely expanded, softly tomentose, like fine kid leather. Tubes free, olivaceous, their orifices at first rich red-brown. Spores olivaceous ochre. Stem stained with red but not reticulated, perfectly smooth. The external portions of the fungus not discolouring when touched, as is usually the case with *B. luridus*, but turning intensely blue when cut asunder. The stem is also deep blue, not *internally red* as in the var. *B. erythropus*. All the various forms of *B. luridus* are specious and handsome, but most poisonous.

Hab. In an upland pasture at Keston. July.

If beauty were to guide the choice in eating funguses, this very pretty specimen of a *Boletus* would certainly be selected in preference to the coarse-looking individual preceding it; but this is another instance to add to the many which occur daily, how little superficial observation can be trusted. Those Boletuses which compose the section of Fries "*Edules*" being generally clumsy and ugly, while among the poisonous "*Luridi*" are splendid examples of colouring which must attract the admiration of the eye, if its possessors be denied the estimation of the palate. Whatsoever the poisonous principle may be in funguses, it is not noxious to the larvæ of those insects which deposit their eggs in the incipient, almost earth-concealed Boletus or Agaric, so that, hatching with its growth, they find food and shelter during its development, travelling up from below, and forming labyrinthine excavations in the soft flesh of the pileus; which then sinks in that portion immediately above the stem, and becomes more or less concave instead of convex.

The mode in which certain apparent accidents produce effects proving the most thoughtful contrivance, cannot be better exemplified than in such a case as this. So long as the immature seminal bodies called spores require shelter and care, the pileus retains its hemispherical form; but such a form compresses the tubes or gills (as the case may be), so that the ripened dust would be retained instead of scattered to fructify. The engineer to correct this is quietly at work: doubtless he believes that he is only regaling his own palate, and so he is, but while he feeds and grows strong and lusty, he has sapped the central strength of the fungus, it collapses and sinks down, in that portion above the stem into which he has been mining; the depression of the centre throws up the margin of the pileus, giving room, and widening the receptacles below, by completely changing the concave to the convex (as in the aged figure in the plate); those spores are then ejected, which were heretofore confined, and we discover that the apparent ravages of the insect conducted, not to the destruction, but to the reproduction, of the plant which nurtured it. Thus are the wonderful ways of the Almighty's beneficence displayed to those who will attend to them; displayed in the humble despised toadstool, as surely as in the most striking phenomena of nature.

Krombholz gives a detailed account of a *B. erythropus*, which is the *B. lupinus* of Fries; the true *B. erythropus* of Fries and Berkeley is only a variety of *B. luridus*. Soil and weather greatly affect the development of these large funguses, and after all we cannot feel satisfied that species have not been formed out of mere sportive subjects. In all our researches, however flattering it may be to personal vanity to fancy puzzling individuals, first novelties, then rarities, genuine honest inquiry brings too often the conviction that "it is only so and so after all." The present prettily banded *Boletus* has at first a character in the stem different from others, but being identified with the Lurid class by the red orifices of the tubes, and differing not at all in configuration and change of flesh from their type, we must admit that only unusual neatness and prettiness elevated it in the first instance above the vulgar pasture community. It seems, however, to the writer worth notice, because showing the great difference of the members of the same family.



Agaricus mutabilis Schöff.

PLATE XXVII.

AGARICUS MUTABILIS, *Schæffer*.*Variable Stump Agaric.*

Series DERMINUS.

Subgenus PHOLIOTA.

Spec. Char. A. MUTABILIS. Very variable in size, densely fasciculate. Pileus slightly fleshy, smooth, expanded, obtusely umbonate, the centre rich yellow-brown or bright tawny at full growth, the margin thin, transparent, cinnamon, turning paler when dry. Gills subdecurrent, close, broad, pale umber, then ferruginous from the spores. Flesh white. Stem slender, fistulose, dark brown, smooth above or minutely pulverulent and pale, squamulose below. Ring woven, suberect, not fugacious, in age deflexed and striate, stained with the spores. Smell and flavour very rich and agreeable; when raw resembling *A. oreades*. Esculent.

AGARICUS mutabilis, *Schæffer, Fries, Berkeley.*

———— marginatus, *Batsch.*

———— caudicinus, *Trattinick, Persoon.*

———— annularis, 543, O. P., *Bulliard.*

Hab. On much-decayed stumps of various trees, particularly Lime. Perennial; springing after electric rains at any period from spring to autumn. Not common.

In a youthful state, with the veil unbroken, we have known this Agaric to be mistaken for *A. melleus*, which grows in similar dense tufts from stumps. If the student be in any doubt as to which of the two has been found, a little patience, if the spores are not yet ripened, will soon decide the question, by that unfailing test, their colour; those of *A. melleus* being white, while *A. mutabilis* deposits a profusion of rusty-brown ones. Deposit is, however, scarcely a correct term, since the dust is exploded to a considerable distance around the pileus of most Agarics. In an aged state, groups of *A. mutabilis* may be seen of one uniform rich brown hue, being coated with the spores they have shed upon each other. They often grow tier above tier in fascicles in the interior of a rotten stump, and do not bend aside in a decumbent manner till lax in decay. Buffs and browns are the tones of colour of this Agaric without any genuine unmixed yellow tinge, which will distinguish it from *A. aureus*, *A. aurivellus*, or any other golden-hued ones belonging to the same division. In the youthful state the pretty scaly stem and perfect veil, with a neat little brown head, render our *A. mutabilis* a very elegant object; when fully developed and saturated with moisture the thin disc of the pileus becomes dark, while the fleshy central umbo remains of the bright original hue; this gives masses of the Agaric a very curious appearance. In early spring the proportions of *A. mutabilis* differ much from those they attain in the dog-days, a high temperature causing them to grow much faster, taller, and consequently more slender and less fleshy. In the drawing the left-hand

group is a spring specimen, growing from a fissure in the horizontal surface of a tree rudely cut down; they prefer such sites, and as the wood decays downwards they extend themselves, continuing for years to appear several times in a season after thunder-storms; we have never found them growing from the roots or bark of trees, nor on the ground. Around Hayes there are four different sites in which we find them: two of these stumps are lime, one is ash, the other is too much decayed to be recognized, but is probably lime.

As an esculent fungus our present subject has considerable claims to estimation, although very peculiar in flavour, resembling gingerbread! Eaten alone the substance is tough, unless in spring when most fleshy; the gingerbread flavour, too, may not be liked, but to improve a stew either of fish or flesh it is very valuable. They have in Germany a most exquisite mode of stewing carp, with "Jews' sauce," and gingerbread is one of the ingredients employed: we are not acquainted sufficiently with the German *cuisine* to assert that it is as a substitute for this Agaric that the said gingerbread is used, but we can answer for the fungus being preferable when to be procured; it dries well like *A. oreales*, and gives out in cooking a bright brown colour, far more pleasing to the eye in gravies than blacker ketchups are.

Most Agarics with fistulose stems should be avoided, but that, as a rule, they cannot be pronounced dangerous, the species under consideration is a proof. Corda has made two species of our present subject, but there seems no real difference beyond their being major and minor forms, and as such they are united by Fries under *A. mutabilis*, but he is wrong in saying this is not the commonly eaten "*Stockschwam*," which it certainly is. Corda (in Krombholz) says *A. caudicinus* of Trattinick is the "*Stockschwam*" of Germany, and *A. mutabilis* of Schæffer the "*Famiglioli gialli buoni*" of Italy—both being esculent. Whether, therefore, we consider them as one or two species is immaterial, provided neither is confounded with the offensive and poisonous white-spored *A. melleus*, the *A. polymyces*, or *Tête de Méluse*. Persoon, in his 'Champignons Comestibles,' distinguishes the esculent Agaric with its synonyms correctly. Bulliard's figure (543, O. P.) is good, but it is a pity he calls it *A. annularis*, because he applies the same name to plate 377, which is the poisonous one. Vittadini, misled among synonyms, perhaps by Fries considering the "*Stockschwam*" to be *A. melleus*, fights a stormy battle of words in its behalf, and thereby was near causing the death of a worthy family, who, thinking the poor innocent * Agaric had been sorely slandered, had a dish of it cooked, but luckily found it so nauseous that to eat was impossible, or they would certainly have died the death of Paulet's dog: "L'animal s'est plaint toute la nuit, et il est mort douze heures après la digestion de la substance vénéneuse."

* "Il Meleo, attesa la sua innocenza ed abbondanza, merita a buon dritto d'essere annoverato tra i funghi comestibili."—VITTADINI, *Dei Funghi Mangerecci*.



F. H. Del.

Reeve & Nicholson imp.

Agaricu. Pyxidatis Bulliard

PLATE XXVIII.

AGARICUS PYXIDATUS, *Bulliard*.*Box-like Agaric.*

Series LEUCOSPORUS.

Subgenus OMPHALIA.¹

Spec. Char. A. PYXIDATUS. Pileus infundibuliform, bistre, at length turning pale with a pinkish tinge, scarcely sub-carnose, the centre quite membranaceous and at length often pervious. Gills narrow, decurrent, distant, rather thick, slightly rufescent. Stem flexuous, solid at first, then hollow, especially above, thickened and pubescent at the base.

AGARICUS pyxidatus, *Bulliard, Fries, Berkeley.*

———— turfusus, *Sowerby.*

Hab. Among grass in exposed pastures, Northamptonshire, *Mr. Berkeley.* At Keston, Kent, in heathy soil, *Miss F. Reed.*

The whimsical name of this pretty little Agaric is not easily accounted for, unless we suppose the colour resembling box-wood to have suggested it. Sowerby's invention as a designation is a droll specimen of latinizing; *turf-osus* being probably meant to snit an Agaric growing upon turf. In England it has seldom been found, but on the heathy brow of Hayes Common and Keston we have two or three times collected small specimens, those depicted being rather larger than usual. It is a very elegant little fungus, in curious contrast with some of the infundibuliform monsters, for instance *A. giganteus*, one of which held a pint and a half, fairly measured, and was not broken by the weight of the water.

This is strictly an autumnal Agaric, appearing in the dewy cool days when all the abundance springing up from heat storms has longed passed away, having afforded a nidus and food to the immature insects. We have had a dense swarm of the small gnat-like *Tipulas* hatched in a basket where funguses had been forgotten in July; and as these merry midges dance in the cool still evenings of October, they no longer require the rich pabulum which nourished them in their larva state, and was so plentifully afforded by *A. rubescens* and many another Agaric and *Boletus*, under the old oak-trees. All the *Tipulas* seem greatly indebted to various fungus growths for the means of growth to themselves; the larvæ are very

¹ From *ὀμφαλός*, an *umbilicus*. Veil none. Stem stuffed, at length generally hollow, not bulbous. Pileus membranaceous, carnosio-membranaceous, or even carnosio-coriaceous and almost corky; when young, umbilicate, then expanded, or altogether infundibuliform, the margin reflexed or patent. Gills adnate or decurrent, never only adnexed or free, unequal, juiceless.

greedy devourers, and their mothers, by one of those instincts we can never be tired of examining into and admiring, deposit their eggs where a supply of food will afterwards be produced for them. The larger *Tipulas* known as "Daddy Longlegs" live under ground in the shape of a maggot without legs and possessing a scaly head; these crawl upwards in the stems of Agaries, &c., on which they feed, but after they have acquired wings, although from their awkward flight and habit of entangling their long legs, they may be seen crawling among the various autumnal products of the soil, their object is not food but a proper site wherein to place the treasure their parental care is engrossed by.

Our little friend *A. pyxidatus* has rarity as well as beauty to recommend it, and its greeting us when few others are to be found adds to the pleasure of seeing it; if it is of no use either to us or the *Tipulas*, at any rate it is not open to the reproach of "cumbering the ground"—it occupies a very small space of our fair common.

Pl. 11



A. M. H. del.

Agaricus dryinus. Percon

Erre & Nichol

PLATE XXIX.

AGARICUS DRYINUS, *Persoon*.*Oak Agaric.*

Series LEUCOSPORUS.

Subgenus PLEUROPUS.

Spec. Char. A. DRYINUS. Veil universal, fugacious. Pileus horizontal, oblique, excentric, compact, hard, about three inches broad, nearly smooth, whitish, the surface broken into brown adpressed scales; the margin involute, with fragments of the broad woven veil adhering to it; flesh continued into the stem, white. Gills white, not very broad, decurrent, forked, crisp. Spores white. Stem firm, almost woody, tomentose at the base; the whole plant, and the stem in particular, turns yellow when bruised, and in drying. Taste and smell agreeable; doubtless esculent.

AGARICUS dryinus, *Persoon*, *Fries*, *Berkeley*.

Coquille du Chêne, *Paulet*.

Hab. Rare. Upon an oak at Hayes.

The veil is a distinctive character of this *Agaricus dryinus*, from all other ascertained English species of the genus *Pleuropus*, or side-footed Agarics, so that the student can scarcely fail to recognize, if he should ever find it. Being a very rare, and therefore interesting subject, we intend to present it under both aspects,—as it grows, in the present plate, showing only the pileus, and in another, giving the reverse, with the gills running down the stem, resembling slightly those of the remarkable *A. euosmus*, of our First Series. There is nothing very striking to fix the appearance of the pileus upon the memory, its being fringed with the white fragments of the ruptured universal veil, which also remain in soft brown scales upon its surface, being the main characters to attend to.

It is certainly *Paulet's Coquille du Chêne*, and we could detect no quality in our specimen which should cause a difference of opinion with that gastronomic authority; but unfortunately we could not afford to eat our subject; by the time two drawings from it had been executed, it was besides not in a very good condition, so we buried it with decent respect, in our Père la Chaise for funguses, from which we are in the habit of supplying our flower-beds with the richest of manures; a manure of decayed Agarics, Boletuses, &c., of any description, being far superior in certainty and effect to guano, which may burn, or vegetable soil, which is full of weeds. We give this hint gladly to our gardening friends, but another to accompany it. Unless covered with earth to keep in the putrefactive gases, the smell will prove very obnoxious; after thorough decomposition has taken place, the earth above should be mixed into the mass intimately as com-

post, and no annoyance will take place in applying it to the borders. In many situations, a cart-load of *A. rubescens* and many other common Agarics may be easily collected in the season, and we have never found them appear among our flowers, although constantly in the habit of turning them to account in the manner here recommended.

The season has again come round. Alas! how quick is the revolution, reminding us of so much intended last year, impossible to perform this; but if *A. dryinus* comes again in its season, it is fully determined that its fate is to be stewed, eaten, and reported upon in our next notice of the subject.

Fig. 1001



Agaricus stenosporus *conversus*

A. M. H. del.

PLATE XXX.

AGARICUS GLAUCOPUS, *Sowerby*.

Series CORTINARIA.

Section PHLEGMACIUM.

Spec. Char. A. GLAUCOPUS. Pileus four or five inches across, extremely solid and heavy; viscid, afterwards fibrillose; compact, when young hemispherical, then considerably flattened, but the incurved margin *never entirely expanded*; at first veiled in delicate arachnoid threads, arising from the whole length of the stem between the bulb and the usual position of the ring, and attached, not to the extreme edge of the pileus, but to the more prominent portion above it, thus forming a distinct zone around the margin, which is smooth, not fibrillose, like the rest of the pileus. At first delicate purple, becoming more or less copper-coloured, streaked with purple-red, and turning dark where bruised. Flesh thick, firm, crisp, white, *not becoming cærulescent*; taste unpleasant, like a turnip or radish, slightly sour, *not acrid, nor leaving an astringency on the palate*. Gills not *at first purple*, but pallid, watery-white, afterwards pale cinnamon and discoloured by the spores; extremely variable in shape, broad, waved, in age serrulate, receding from the stem or adnate in the same individual, but not *truly emarginate*. Spores reddish-ochre. Stem firm, stout, at first very short, bulbiform, then elongate, three or four inches high, nearly equal, marked with pale lilac, yellowish in age, copiously dusted with the spores; irregularly hollow.

A. GLAUCOPUS, *Sowerby, Fries*.*Hab.* Under birch-trees on Wickham Common.

Of the Cortinarius Agarics, Fries, in his 'Epicrisis,' says, "A vast and truly natural genus, which can only be confounded by a tyro with the *Dermini*, as a skilled person at the first glance distinguishes them; but the species, as for the most part happens in natural sections, are so intimately connected that we almost despair of discriminating each of them. They can only be distinguished with certainty when young, and in damp weather; in dry weather, and discoloured by age, the most familiar kinds are no longer recognizable." When to this it is added, that our master himself has in his 'Epicrisis' given up many before adopted in his 'Systema,' "not daring to determine from dried specimens," the unfortunate pupils may well be in difficulty; yet, when it is asserted that this immense family forms at least half the Agaric population of the northern woods, we cannot pass them over as an insignificant group, and it behoves those who live where they flourish so freely to make observations not easily carried out in the warmer districts of Europe, where other tribes replace them, unknown to us except through books. The study of the Cortinarius Agarics is assisted by their division into two main sections, *Phlegmacium* and *Myxaciium*; the former being viscid in youth, but not permanently so, and possessing arachnoid veins; the latter, clothed in slime instead of cobweb-like tissue. The subdivisions of these two classes are intricate. *A. glaucopus* of Fries is ranged under the *Scauri*, but our specimens differ in a few trifling particulars from his species. The discrepancies, however, are still greater with all the others; and there we must leave it for the present, satisfied with having represented faithfully the individual before us, whose portrait can

scarcely be confounded with a number of stout substantial congeners, occurring at the same season and in similar sites; some clothed entirely in brown without any tinge of purple; others with gills, and even flesh, partaking strongly of that hue; but none that we have discovered, with the peculiar zone which distinguishes *A. glaucopus*, produced by the virgate fibrillose streaks which mark the pileus not being continued to the margin.

We have given no further synonyms than that of Fries; they are all doubtful, and will remain so till some Mycological Oedipus shall arise to solve enigmas constantly perplexing the student, who is perpetually checked in his "Eureka" by some troublesome little want of coincidence. The calling this Agaric by a name, one meaning of which is blue or azure, is, as far as our specimens are concerned, a decided case of *lucus à non lucendo*, for blue is not exhibited on any portion of the fungus. It would be better, as far as we are concerned, to adopt a secondary meaning, "bright and shifting like an owl's eye," for that does in some degree apply to the shining pileus of variable tints.

We have found *A. glaucopus* for several seasons in the same spot, a sandy dell, beneath ancient birches, innocent of any cultivating invasion since man was ordained to till the earth; and likely to remain so, to the delight and solace of many a rabbit delving long galleries in the yielding soil, where the roots of the noble drooping old birch-trees serve as roof-timbers to the ancient halls and modern additions of the timid brown architects. Perhaps the soil being often loosened by repeated burrowings assists the broad pileus of *A. glaucopus* to display itself in more regular proportions than many other Agarics; but showy, specious, and worthless, it is certainly not humanly esculent, nor do snails and their kind eat their way into its substance. It appears late in the season, when the birch-leaves are turned to pale gold or scattered over the dewy grass, thickly spread with beaded spider-webs, and then the pileus is decidedly viscid, very shining and brilliant, but becomes dull as it dries after being in the house. The young specimens are lovely in their delicate veils, excellent examples of the arachnoid type.



Agaricus pudicus Frizian

PLATE XXXI.

AGARICUS PUDICUS, *Bulliard*.*Modest Agaric.*

Series DERMINUS.

Subgenus PHOLIOTA.

Spec. Char. AGARICUS PUDICUS. Solitary or cæspitose. Pileus three inches or more broad, white tinged with umber, convex, then expanded, obtuse, dry, smooth, polished. Stem solid, nearly equal, often curved at the base, smooth above, fibrillose below, tough, brown within towards the base. Ring deflexed, persistent. Gills broad, ventricose, slightly rounded behind, adnate, whitish or pallid umber till clouded with the spores. Spores dull brown, scarcely ferruginous. Flesh white, extremely firm and crisp, taste at first agreeable, but leaving a slight astringency on the palate, becoming very unpleasant, and entirely losing its weight and substance in drying, not deliquescent. Not esculent.

AGARICUS pudicus, *Bulliard, Fries*.*Hab.* Stump of elm; Hayes. May.

When first this pure-looking, pretty Agaric presented itself, we hailed it with delight as the long-sought "Pioppini," the famous esculent-Agaric so called in Italy. That it grew, not on a poplar, but from the stump of an elm, was in some degree staggering to our faith; but we commenced a careful drawing of the welcome stranger, no longer a foreigner, but a native of our own country! The specimens found were twins only, not more in a developed state, and, till their portraits were complete, of course breaking and eating was out of the question; the smell was quite agreeable, like a mushroom, and our faith remained unshaken, till we, at last, were at liberty to taste. "Surely this substance must be very tough and indigestible?" we said to ourselves; "but in Italy that seems no objection, perhaps stewing may soften it. But hold, how unpleasant the *après-goût* of the morsel we have masticated! no esculent Agaric ever possessed that peculiar flavour;" and then it was resolved that perhaps the astringent disagreeableness might pass away in drying; so it was dried, and, strange as it may seem, the tough, firm, elastic flesh vanished, leaving little fragile morsels so unsubstantial as to be really nothings. "And was it the Pioppini, then?" No, certainly not; for further researches, when once doubt had been excited and a thorough examination of the fungus made, identified it with *A. pudicus* of Fries, the *Agaricus caperatus*, a name erroneously applied in the 'Flora' volume, and therefore not given as a synonym, lest it should mislead, the true *Agaricus caperatus* of Fries being a Cortinarius fungus totally dissimilar.

The true "Pioppini," the *A. ægerita* of Fries's 'Epicrisis,' is yet to seek in England, and there is small chance of finding it, since, although the Lombardy Poplar (*Populus dilatata*) is now so common here, the first plant was brought from Italy by Lord Rochford, in his travelling-carriage, about eighty years ago, and

as it is a tree which flourishes very long before decay commences, our English trunks are not aged enough, in all probability, to afford the Agaric a proper habitat. It is mortifying to be obliged so often to confess that, beyond the comparatively small number of funguses good for human food, we know little or nothing of the qualities of this universally and lavishly distributed family, nor what services each may be appointed to perform in its sphere.

There is much to be done in Mycology, by a competent vegetable physiologist, beyond the mere learning to name species correctly, although that is valuable, if truly correct, as far as it goes. In most branches of science a great improvement has taken place: study was formerly apt to stop with a mere acquisition of names; but people are beginning to understand the difference between the *means* to an end and the *end* itself. "Accomplishments," in the old-fashioned sense, find their proper level, and the power to read a French book, possessed by a person who never opens one, would scarcely be considered worth the time lost in acquiring such an "accomplishment" as that language. We can remember the time when a young lady who knew the Great Bear from Cassiopeia's Chair, and was sure that Corona Borealis and Aurora Borealis were not the same thing, was considered something beyond "accomplished." Cabinets were filled with "music shells" and all sorts of whimsically-named shells, and if their possessors knew each by the dealer's name no one thought of the quondam inhabitants who created those pleasant homes for themselves; they sentimentally fancied the shell sighed for the "sounding shore" again, but would have screamed and run away if it had been presented to them as first tossed upon that shore. Old ladies, who studied and arranged their dragon and egg-shell china, would have been startled if hailed as Keramologists; but their knowledge of cups and saucers was about as valuable as that of the porcelain-like shells possessed by the *soi-disant* Conchologists. Now a true taste is roused, and shells are studied in a genuine way, as subsidiary to the mollusk which forms them, whether they be immovably fixed to the rock, or borne about on powerful slug shoulders. We might go on; but the night of ignorance glorified is passing away, and the dawn of better things breaks upon us. And when such charming books as the Popular Series on Botany, on Entomology, Phycology, &c., are to be had, as those our worthy publisher (himself the exponent of Conchological science in its true sense) offers to the public, young people, crammed with *finishing* lessons, must no longer be allowed to complain, in listless languor, that the country is so dull! All may choose a pursuit; all will find a great deal to be finished yet; pleasant guides are ready to attend them; and the "Book of Nature," we may hope, will do when Bull's box has been detained with the new novels!



A. M. H. del

Reeve & Nichols imp

Agaricus lepidus, Fries

PLATE XXXII.

AGARICUS LEPIDUS, *Fries*.*Dainty Agaric.*

Series LEUCOSPORUS.

Subgenus RUSSULA.

Spec. Char. AGARICUS LEPIDUS. Pileus from two to three inches across, irregular from the compression of the soil, grass, roots, &c.; at first convex, then slightly depressed in the centre, dry, opaque, dull, variegated with sanguine-red, pallid at the centre, where it is generally rimoso-squamose; margin patent, obtuse, *destitute of striæ*. Gills rounded in front, rather branched, much forked, cream-white. Stem solid, compact, smooth, white, with a beautiful roseate flush. Flesh extremely firm, crisp, and brittle. Perfectly mild, esculent, excellent. RUSSULA lepidus, *Fries*.

Hab. Under tall trees, oaks at Hayes Rectory, beech according to Fries; in dry situations. Summer.

The "fatal red colour," which Fries says has "seduced" authorities into mistakes respecting the varieties of *Russula*, indirectly determines for us, in this case, a most valuable species; not that shades and tinges of changeable sanguine intensity, more or less purple, more or less scarlet, could ever be described for the unfailing guidance of students who, perhaps, have not even the optical power of distinguishing colours, but because, in the case of *A. lepidus*, the hue which was red when growing, and more particularly that delicate flush which pervades portions of the stem, comes out of the tourtière bright verdigris-green! The loss of the roseate stains we could have understood, under the influence of heat, &c., but not the acquisition of the antagonistic colour. Yet so it is; and as no other *Russula*, nor indeed any red Agaric that we are aware of, undergoes a similar change, it must be considered a peculiar characteristic.

The subdivision of Fries, *Rigida*, is well exemplified in this species, for although so brittle that it is scarcely possible to extricate the pileus from the turf without breaking it, it is very crisp. The flesh is exactly the reverse of succulent, and the stem resembles in internal texture, when broken across, one of the frothy sticks of peppermint lollipop, of which the technical name has escaped our memory. *A. lepidus* grows scattered about in twos and threes, often united at the base; it comes after summer electric rains, while the ground is yet unsoftened; and wonderful it is to see the way in which the stem pushes up the pileus through all obstacles, so that the poor Agaric, if not absolutely leaving part of the brim of its hat bent into the ground, and cracked away from the centre, is always irregularly developed, and fractured, in the contest to overcome the difficulties in the way of its expansion. Within a few yards of the dry old woodland slope where annually we find a valuable harvest of *A. lepidus*, a crop of *A. rosaceus*, of Fries, constantly succeeds them. Seldom are the two growing at one period: if so, the acrid, viscid, but beautiful *empoisonneur* is in a damper situation; still the danger would be great of unskilled judgment pro-

nouncing upon them, without the test of the tongue; there can be no deception then. The syren is much more elegant in the ivory gills, and distinctly mottled, brighter red and white. Strange to say, the cold slugs prefer its acrid warmth to the mild, innocent, and most excellent *A. lepidus*.

Of that we have not much more to say. If we were to attempt to disentangle the meshes in which the term "*Russula*" has involved a large party of innocent Agarics, we should be ourselves served as the wasp is, who follows flies into a spider's web. "*Ruber*," "*sanguineus*," "*rosaceus*,"—which is which? Let them all be eschewed together; identification, if not impossible, is one of those enigmas never to be solved; let us content ourselves, then, and leave it to sleep with squaring the circle and perpetual motion. Two *Russulas* only, as far as our experience goes, which have really any red in their caps, and are also esculent, are of a very *dull red*—the present *A. lepidus*, and *A. vescus*, which we have before described; the bright carmines and scarlets are meretricious. Another point much in doubt, is the colour of the stem; we have examined *A. emeticus*, *A. rosaceus*, &c., &c., and all our specimens have had brilliantly coloured caps but perfectly snow-white stems; only our dull friend *A. lepidus*, wearing a pileus which, if it can be styled *bonnet rouge* at all, is certainly a shabby-looking one, has a roseate glow or blush upon the stem, which in purity and beauty surpasses all that other Agarics can display.

We eat them always; they are of a remarkably pleasant consistency when baked with fresh butter in a covered dish; and so far from the ærugineous appearance setting us against them, it ought to assure us of the identity of the subject with that esculent *Russula* to which Fries, in the confusion of old names, wisely gave a new designation—*lepidus*.



A M H 107

Reeve & Nichols imp

Agaricus dryinus. *Person*

PLATE XXXIII.

AGARICUS DRYINUS, *Persoon*.*Oak Agaric.*

Series LEUCOSPORA.

Subgenus PLEUROPUS.

Spec. Char. AGARICUS DRYINUS. Veil universal, fugacious. Pileus horizontal, oblique, excentric, compact, hard, about three inches broad, nearly smooth, whitish, the surface broken into brown adpressed scales; the margin involute, with fragments of the broad woven veil adhering to it; flesh continued into the stem, white. Gills white, not very broad, decurrent, forked, crisp. Spores white. Stem firm, almost woody, tomentose at the base; the whole plant, and the stem in particular, turn yellow when bruised, and in drying. Taste and smell agreeable; doubtless esculent.

AGARICUS dryinus, *Persoon, Fries, Berkeley.*

Coquille du Chêne, *Paulet.*

Hab. Rare. On an oak at Hayes.

It is seldom that we have been tempted to give two different representations of the same fungus, but in this case a complete portrait appeared of sufficient importance to warrant so doing; since, although "*orcilles*," and "*cuillers*," and "*coquilles*," and "*conques*" of various kinds have been held in vulgar estimation, it is not easy to make out whether different species or the same were disguised (for pointed out they are not) under these designations. *Agaricus ostracatus* we know to have been eaten from the earliest period of which we possess correct data; it differs from the present subject in having no veil; the pileus is, therefore, perfectly smooth, resembling in texture *A. personatus*, the Blewit, while the distinguishing veil of *A. dryinus* remains in brown scales upon the surface.

At first sight the reverse side of this species reminds us of *A. euosmus* (given in the First Series), the anastomosing gills upon the curiously elbowed stem having a good deal of that type; but *A. euosmus* smells like tarragon, does not turn yellow, and being destitute of a veil has no scales upon the pileus; it has also lilac spores, instead of pure white ones.

We fear these recapitulations may be tiresome to some readers, but they are needful for others, since a mere reference to our First Series is useless to those who do not possess it. The complaint that any one should commit the mistake of being content with the half of a book applies only to those who adopt the latter half. Many of our patrons may have thought the First Series a sufficiency for them, and cared nought for a second; but how any person beginning with the latter half can refrain from ordering the former, is a

mistake at which we must be pardoned for expressing our very innocent surprise. We trust this error will be amended, to the great gratification of our publisher, our own satisfaction that in Mycology, as in mutton, *l'appétit vient en mangeant*, and to the relief of readers who are annoyed at the tautological repetition of matter, not new to them, although needful for Second Series-ists.

Agaricus dryinus is an autumnal or late summer fungus; *A. ostreatus* succeeds it; *A. euosmus* is invariably a spring production. We are not fond of raising questions or making doubtful suggestions in cases beyond the reach of our observing powers, but we may allow ourselves to hint, that the quality of these various species, as well as the period of their development, may depend on their habitat. For instance, autumnal funguses are more likely to be fed from the juices of the living tree at the season when they are no longer taken up for its natural duties, and perhaps the juices so converted are more wholesome than the pabulum afforded to *A. euosmus* by a dead stump saturated with rain, which is the site it prefers; and again, the post, having no leaves to produce, can feed an Agaric in spring, when living timber has something better to do.



PLATE XXXIV.

AGARICUS VAGINATUS, *Bulliard*.*Sheathed Agaric.*

Series LEUCOSPORUS.

Subgenus AMANITA.¹

Spec. Char. AGARICUS VAGINATUS. Pileus at first conico-campaulate, when fully expanded plane, slightly depressed in the centre, scarcely umbonate, fleshy except at the margin, which is consequently pectinato-sulcate; viscid when moist, beautifully shining when dry; at first there are a few broad scales, the remains of the volva, but these soon vanish; of various colours, more usually mouse-grey, but occasionally tawny or inclining to buff. Gills free, ventricose, broadest in front, often imbricated, white; spores white. Stem six inches or more high, half an inch thick, attenuated upwards, brittle, sericeo-squamulose, scarcely fibrillose, splitting with ease longitudinally, stuffed with fine cottony fibre, at length hollow, except at the very base, which is solid; not bulbous, obtuse at the base, where it is furnished with a volva, adnate for about an inch, then free, in general surrounding the stem like a sheath, but sometimes with the margin expanded. Ring absent. Smell scarcely any; flavour agreeable; esculent, but not free from suspicion; the fulvous variety, which is a much more coarsely developed fungus in all its characters, being certainly dangerous.

AGARICUS vaginatus, *Bulliard, Fries, Berkeley, Vittadini, Krombholz.*

Hab. Woods and pastures; common.

It happens that the genus *Amanita* contains in it some of the most excellent species for the table, as well as some of the most injurious, at least to the human system, for we cannot consider the result of experiment made "in corpore vili" satisfactory where "our noble selves" are in question. To refrain from that which caused the greatest inconvenience to a dog, is reasonable enough, but to eat of that which simply made no difference to his organs of digestion, might try ours severely; and therefore, although we have several times eaten the delicate and really excellent mouse-coloured variety of *A. vaginatus*, it was not

¹ *Amanita*, a name given to some esculent fungus by Galen. Veil double: one universal, covering the whole plant in a young state, distinct from the epidermis, at length burst by the protrusion of the pileus, part remaining at the base of the stem, part either falling off or forming warts on the pileus; the other partial, at first covering the gills, and afterwards forming a reflected subpersistent ring on the top of the stipes. Stem stuffed, at length hollow, squamoso-fibrillose, thickened at the base. Pileus with the disc fleshy, the margin thin, campanulate, then plane; viscid when saturated with moisture. Gills attenuated behind, free, broader in front, ventricose, close, but little unequal, when full grown denticulated. Subsultary fungi, growing on the ground, or dung, never on wood; not soon decaying.

in that pleasant mood of confidence that would enable us to make a meal of it. A dozen large ones are said to have produced soporific effects ! but a dozen of any large fungus would give a nightmare, one would think ; so that merely a pleasant dreamy phase of the Koriac's muscarius debauch being produced by this, a near relative, is rather in its favour since no worse followed. It is a curious fact, that several Agarics, of which this is an instance, tasteless and scentless when crude, acquire by cooking a stronger animal flavour than many of which the natural scent is powerful ; *A. vaginatus*, broiled with butter, tastes extremely like meat. Doubtless, the chemical properties of funguses are greatly modified by heat, and it may be that some noxious qualities are thus neutralized ; but in the most fearfully and certainly poisonous of Agarics, a snow-white, elegant, enticing Amanite, *A. phalloides*, the bane, whatever it may be, is neither removed by the process of cooking, nor remediable by skill when once imbibed. We have not in England the most prized of this family, *A. Cæsarius*, and in Italy it is so much sought after, that to commit excess in eating it would scarcely be probable. If Claudius, feasting as Roman emperors did, ate a "dozen large ones," there is no occasion to suppose Locusta added any foreign mischief. It may be, that this delicacy was used as a bait for the trap ; it may be, that if people of humbler station could afford to gormandize like a Roman emperor, the accumulated evil principle latent in this Amanite would tell on their system, as it did on his ; and it may be quite simply a case of surfeit ; but *A. Cæsarius* will never regain, any more than *A. vaginatus* will ever attain, that position above all questioning that ought to appertain to Cæsar's mushrooms as well as to his wife.

Unless great care be taken to extricate it from the grass roots, this truly elegant Agaric will not be properly displayed, with the white hose, the remains of the veil, which originally wrapped over head and all, like an egg, before it was ruptured by the expansive growth of the pileus. This section of the Amanites have the ring obliterated, or are destitute of it ; while others, as *A. muscarius*, have a beautiful ring, but the volva is not there ; they all, however, compose one family group.



PLATE XXXV.

BOLETUS LURIDUS, *Schæffer*.*Poisonous Boletus.*

Spec. Char. BOLETUS LURIDUS. Pileus from two to six inches broad, convex, expanded, pulvinate, minutely tomentose, olive, brick-red, pinkish, cream-coloured, or ferruginous-brown. Flesh more or less yellow, changing to blue and green. Tubes nearly free, quite simple, round, yellow or greenish, their orifices of a bright orange-red. Spores olivaceous-ochre. Stem very variable in length, bulbous, tomentose, sometimes quite smooth, but generally more or less marked and reticulated with crimson-red. Very deleterious, but not disagreeable either in taste or smell. BOLETUS luridus, *Schæffer, Fries, Berkeley.*

Hab. Pastures, &c.; summer and autumn. Very common.

Every one knows what extraordinary differences exist between the forms of the human skull; yet all, from the god-like Greek, Homer, to the monkey-like Papuan,—whether they have the broad, flat, almost eyeless, noseless, unmeaning face of the Mongolian tribes, or the eagle-beaked proboscis, and physiognomy *all features*, of the ancient Romans,—possess those characteristics which belong to one common humanity. And thus may we consider the natural family *Boletus* as bearing towards each other a similar relation to that subsisting between all the sons of men. Whether we may carry on the comparison in the case of any individual *Boletus* is doubtful. *B. Satanas*, *B. erythropus*, *B. elephantinus*, were considered as mere varieties of the present species *B. luridus*, differing from each other only as the children of many an English family do, where red-haired, and blue-eyed, and nut-brown brothers and sisters form the circle; but Fries has divided *B. Satanas* from *B. luridus*, on grounds which he deems sufficient, and the affinity of Withering's *B. elephantinus* is certainly with the rich crimson *Satanas*, not with *luridus*.

Our present subject, then, is the *B. luridus* of Schæffer. If compared with Plate VII. of our First Series, and Plate II. of the Second, it will be found that, while they resemble *each other* strongly in general configuration, they differ from this genuine *B. luridus* in that respect.¹ The juvenile pileus of those is ball-shaped, cooping in towards the stem: they are much less compact in after growth, becoming irregularly

¹ Mere colour does not constitute a botanical difference of species; therefore the absence of crimson in the *B. elephantinus* may be only a case of “white lilac,” which we unhesitatingly apply to *Syringa vulgaris*. We may here be allowed to prove, by a fact within our own knowledge, how useful a little botany would sometimes be. A lady gardener, who spared neither time nor expense, but was a mere florist, was looking over a nurseryman's list, and came to *Syringa purpureus*. Her only idea of a *Syringa* was the common *Philadelphus*, so called, and the idea of a purple one was quite novel and delightful; half-a-dozen were sent for, and the disappointment may be imagined: “What!—only common lilacs!”

lobed, and waved at the margin ; while *B. luridus* is always very regular in shape, the margin being sharp and entire, not in the least waved or lobed, and never cooped in towards the stem. The mass of tubes in the other two species is exceedingly shallow when young, and quite concave ; in *B. luridus* it is plane with the margin at first, and afterwards, by growth, very regularly convex, so that the form of the head becomes a much-flattened sphere, divided into two nearly equal portions by the restricting margin, the pileus above and the tubes below having the same convexity. The epidermis of *B. Satanas* and its brother is sub-viscous ; in *B. luridus* it is very slightly so, and only when wet, when dry it is tomentose. The tubes are not so pure a yellow as in the others ; the flesh is yellower, and nothing like so thick or solid as theirs. It is a bold, handsome fungus, sometimes young orange-red specimens being particularly pretty : occasionally under trees the hues are all more delicate than in open pastures.

If a person, totally ignorant of the qualities of the *Boletus* tribe, were invited to select from a number the most promising article for diet, the choice would very possibly fall upon some of these neat, clean young deceivers. Their smell is not unpleasant, and their flavour is sweetish ; there is nothing at all to indicate injurious qualities, unless the change of colour be admitted as a test ;—the evidence against *B. luridus* is too strong to allow of any rash experiment in disproof of the charge, as the result might corroborate it. It must be remembered that others of the tribe turn blue as well as this, therefore that change is no proof that any blue-blushing *Boletus* we cut across is *B. luridus*, but it will be well to eschew *all* that do so. The tubes of this species are so fine that in a young state their orifices are scarcely visible : they are dull yellow, till the ripening of the spores gives them an olivaceous hue. Their orifices being red or orange would mislead, unless the pileus were broken asunder,—then it is evident that the bright red tint is confined to the lips ; in age it disappears, and the spongy mass appears dull olive only.



A.M.H. del

Vincent Brooks, lith

Agaricus dealbatus, Sow.

PLATE XXXVI.

AGARICUS DEALBATUS, *Sowerby*.*Dirty White Agaric.*

Series LEUCOSPORUS.

Subgenus CLITOCYBE.

Subdivision DASYPHYLLI.

Spec. Char. AGARICUS DEALBATUS. Pileus from three-quarters of an inch to two inches broad, white, greyish cream-colour, or tinged with rose; at first convex, then plane, orbicular, the extreme margin only involute, or variously repand, lobed, and undulate; sometimes depressed from the turning up of the margins, which in age are entirely unrolled; dry, smooth, shining, but clothed with a minute farinaeous silkiness, which turns brown when bruised, and retains the impression of the fingers; in wet weather water-soaked in concentric zones, forming small ridges when dry. Flesh thin, pallid. Gills adnate, not decurrent, though apparently so in aged specimens, from the depression of the pileus, very close, cream-white, moderately broad. Spores white. Stem an inch or more high, from two lines to a quarter of an inch thick, often curved as if excentric, flexuous, greyish-white or rose-tinted, turning brown when handled, pruinose at the apex, stuffed, the fibrous bark very distinct. Odour fungoid and disagreeable.

AGARICUS dealbatus, *Sowerby, Fries, Berkeley, Greville.*

Hab. In rings, or gregarious, in pastures; often cæspitose or tiled one over the other. Autumn.

There is a notice of this Agaric in our First Series as one of those likely to be confused with the Champignon of mushroom merchants, *Agaricus oreades*. It resembles also *A. subpulverulentus* of Fries in colour, and the disposition to excentricity of stem: that fungus we shall shortly present to our friends, when they can compare the portraits for themselves. The subject now given is less fleshy than its relative (for they are related), and has a more disagreeable smell. *A. dealbatus* is not esculent, although not virulently injurious: we have known it eaten by mistake for *A. oreades*, when, as the flavour was not relished, the gourmand's escaping with only nausea may be accounted for by the small quantity consumed. It is one of the latest of the autumnal Agarics, springing, often in rings, when scarcely any of the more tender species remain, so that it is much more frequently noticed than its deserts warrant, catching the eye as it glitters among the long dank grass, in company with little white Puff-balls. It is by no means an inelegant Agaric; but our chief reason for bringing it forward is to distinguish it from more worthy characters of its class.

It is amusing, but also highly gratifying, to compare the changes eighty years have made in the opinion of the world as to the proper studies of women. While deprecating, as every truly feminine mind

must do, modern attempts to subvert the order of Nature, to harden the soft, and make bold the gentle, forming Amazonian nondescripts, fit for parliamentary "eloquence" (save the mark!), or to compose regiments after the pattern of Dahomey, we congratulate our sex heartily that at present they are not likely to be insulted by a dedication such as this, save from a school-boy poet,—certainly not from the learned Cambridge Professor of Botany. "To the Ladies of Great Britain, no less eminent for their elegant and useful accomplishments than admired for the beauty of their persons, this second edition of the following letters is, with all humility, inscribed by the translator and editor." These letters are on the 'Elements of Botany,' addressed to a lady by the celebrated J. Jacques Rousseau, whose love of Nature found pleasant occupation among plants: pity he was not always as innocently employed, for these letters, with a few modern additions, would still form an excellent elementary work, based on the true principle of beginning with the organization of plants, instead of merely acquiring names. The French ladies of his day received a far higher education than their English contemporaries; yet, even to them, Rousseau thought the subject required some apology for its introduction:—Dated "22nd August, 1771. I think your idea of amusing the vivacity of your daughter a little, and exercising her attention upon such agreeable and varied objects as plants, is excellent, though I should not have ventured *to play the pedant* so far as to propose it myself."

The Cryptogamic series of plants are curtly dismissed in the original as too abstruse a subject for common study, and Professor Martyn has added no light, nor even corrected errors in nomenclature, while the conclusion is blandly acquiesced in by his giving no kind of comment upon it. Here it is:—"After all, the objects of this Order are not universally allowed to be plants, but are suspected, though seemingly without much reason, to be formed by animals, for their habitation, after the manner of zoophytes or corals. But this is a subject too difficult and nice for our discussion: and perhaps after all the fungi may prove to be one of those links in the chain of Nature which unite the vegetable to the animal kingdom; and though they should turn out to be the habitation of minute insects, and to be formed for and by them, yet they may have at the same time the growth and texture of plants."—Letter xxxii., p. 500.



PLATE XXXVII.

CANTHARELLUS CORNUCOPIOIDES, *Linnaeus*.*Cornucopia Chanterelle.*

Gen. Char. Pileus furnished below with dichotomous, radiating, branched, subparallel folds, not separable from the flesh, sometimes anastomosing or obsolete.

Spec. Char. CANTHARELLUS CORNUCOPIOIDES. Cæspitose. Pileus three inches or more broad, pervious, trumpet-shaped, rugoso-squamulose, umber-black, somewhat lobed and split, tough, elastic, confluent with the stem. Hymenium decurrent, cinereous, bluish or inclining to purple, either very slightly rugulose or wrinkled, not plicate. The entire fungus *carnoso-membranaceous*, not *fleshy*. Spores white. Scent and flavour agreeable.

CRATERELLUS cornucopioides, *Fries*.

CANTHARELLUS cornucopioides, *Berkeley*, Eug. Flora vol.

PEZIZA cornucopioides, *Linnaeus*, *Bulliard*, *Sowerby*.

ELVELLA cornucopioides, *Schæffer*, *Bulliard*.

MERULIUS purpureus, *Withering*.

Hab. On stumps of underwood. Autumn.

“La Trombetta di morte” is a very peculiar and elegant fungus: it is only on account of the funereal colour that so awful a name has been bestowed upon it: it does not appear to have any injurious qualities. The texture is not such as lends itself tenderly to gastronomic exploits, being membranaceous like that of the ash-leaved Lichen, *Peltidea canina*, neither fleshy nor juicy. The smell and taste are agreeable; so much so, that one of our earliest converts to the wisdom of Mycology purchased half a bushel in Covent Garden (we could never discover where they were collected, but suspect in Epping Forest) to convert into ketchup. The experiment was cheap enough—only two shillings being the charge made for the poor woodland denizens so ruthlessly torn from their habitat and crammed into a hamper. Ketchup, we need scarcely say, they did not afford; but it was a gratification afterwards to find that the purveyor of the article had *not* recommended them as being the *Cantharellus cibarius*, commonly eaten.

Our “Cornucopia” is placed now under Fries’s section *Craterellus*. We have explained this before, as far as the common reader will be inclined to follow us, and we do not think we are competent to lead beyond this point. If it is not for us to *defend* needless subdivisions in genera, it is still less becoming to *dissent* from them; and certainly few are competent to follow out the details on which changes in nomenclature, &c., are formed. We have only to sit patiently at the feet of Gamaliel.

The youthful specimens of *C. cornucopioides* are quite black, and when water-soaked (for they are great water-drinkers, or *hygrophanous*, as it is called) the fully developed ones are very nearly so; by degrees the ripening of the spores pales the dull grey hues of the hymenium, powdering its indistinct veins with white dust, while the inner side of the horn becomes brighter umber than before. It is a very persistent fungus, and will bear wetting and drying again more than once, but finally, if exposed to the air without pressure, collapsing to the appearance of a bit of charred stick. It is never viscid, nor eaten by insects. There is no other fungus we know of that can be mistaken for it.



A M H del

Reese & Nichols Imp

Agaricus rachodes Vittadini

PLATE XXXVIII.

AGARICUS RACHODES, *Vittadini*.*Shaggy Agaric.*

Series LEUCOSPORUS.

Subgenus LEPIOTA.

Spec. Char. AGARICUS RACHODES. Subcaespitose. Pileus very large and robust, often ten inches across when mature, at first extremely compact, firm, hemispherical or slightly elongated; the epidermis quite entire, humid, smooth, or rivulose, at length broken up into large persistent scales, except in the centre, which always retains a portion entire, and is *never umbonate*; beneath the scales the pileus is extremely shaggy, flesh-coloured or pinkish streaked with brown. Flesh at first white, compact, and crisp, softening, but becoming leathery in age, nearly juiceless, turning orange-red when cut. Gills ventricose, remote from the stem, terminating in a species of collar, which encircles its apex; watery white, turning dirty-red when bruised, very brittle. Spores white. Stem largely but irregularly bulbous, curving outwards, not *carried through the flesh to the epidermis*; having a well-defined central channel which contains a filmy pith; splitting longitudinally, quite smooth, *free from any kind of markings*, but turning brownish after exposure to the air. Ring movable, *fibrous* (not cartilaginous), shaggy, rudely torn and lacerated. Smell hot, a little resembling that of *Solanum Dulcamara*. Excellent for food.

AGARICUS rachodes, *Vittadini*, *Fries*.*Hab.* In pastures, in rich black soil, after heavy rains. Autumn.

There is a tendency, which appears to be unavoidable in writing biography, to worship the idol we set up for the moment; to hide faults, to weaken aspersions, to place the character before the world in as favourable a light as possible. Truth may be very ugly, but what of that? it is our business to adorn it. Did not the painter win all praise and much pelf who copied Venus and Apollo for all his sitters, after faithful truth had nearly starved him? And then there is something chivalrous in breaking a lance in defence of the slandered. Even so, Vittadini has not only painted the gayest and cleanest of funguses; all in trim toilettes; never speckled with mud, or torn and draggled as out-door garbs of even pretty Agarics may be,—funguses that surely grew from velvet-pile carpets, not mossy ones, and have been drilled into good carriage instead of lounging at ease. But he has tried hard to purify their reputations besides, zealously taking up some bad causes, and arguing with legal subtlety in defence of “injured innocence:” wolves in the guise of mutton are they notwithstanding all his pains. Is it not then extraordinary that, in the present case, he should set down a very worthy individual, confessedly nearly a stranger to him, in terms such as these?—“*Agaricus rachodes* is made no use of among us, although it is true that it comes under a section of funguses generally esteemed innocent: it has no external characters which would induce us to cook it; the odour is displeasing, the flavour nauseous, and the colour of the flesh uninviting.” O Signor Vittadini, who praised *A. melleus*? Not even to try before you condemn, and although the dosing of the

dogs had worked those involuntary experimentalists no harm; and then to send forth this statement among those who, knowing no better, believe it! Why should Fries doubt your word? or any one, indeed, who has not the means of verifying or disproving it? for it is not a common Agaric, this poor *A. rachodes*.

Now for simple truth; and first to notice one point:—Vittadini's portrait, with a species of foliage pattern running between the scales, is in fancy costume. The genuine plant is coarse, rough, and inelegant; beauty we cannot say it possesses: there is a sort of bold picturesqueness about it, that is all. It is very much less elegant in every way than its relative *A. procerus*: they resemble each other as the wild horse and one of Meux's dray elephants may do. In a youthful state, *A. rachodes* is excellent eaten in substance; when old, and in texture like chamois-leather, the ketchup it affords is scanty in quantity, but super-excellent in quality, as we doubt not even our Italian friends would allow. Strange that neither they nor the French have any notion of this exclusively English dainty, ketchup. In the London market those who deal knowingly in the sauce-manufacture give the best price for *procerus* mushrooms, including both the true variety and this *A. rachodes* in one category; the latter indeed, yielding more juice, is preferred. Dry salt will not disintegrate the substance enough to make ketchup; a very potent brine is the best medium for the purpose, but the experimentalist must use little of it, and not boil the liquor obtained. Having given, in our article on *A. procerus*, as complete a set of distinctions between the two as we knew how, very slight recapitulation seems needful. First, however, we may point out the curious conical cap worn by the infant Agaric—a regular *bourrelet* screens its tender head: it is speedily deciduous, and we have found no notice of it elsewhere; this appendage is quite unlike the remains of the universal veil in any other fungus.

Agaricus rachodes.

Much more robust in all its proportions; firm and stout.

Not umbonate.

Scales so persistent as to cause chasms into the flesh of the pileus by impeding its expansion, thus giving the pileus a notched appearance.

Ring fibrous, dropping off in fragments, seldom entire or perfect.

Stem smooth, scaleless, colourless till fading, brownish in age.

Flesh and gills turning orange-red.

Cæspitose, with rude irregular marginate bulbs, and stems curved from them.

Agaricus procerus.

Taller, more graceful, less fleshy.

Umbonate.

Scales secedent, curling up from the pileus when dry like the cuticular bark of decaying twigs; attached only to the shaggy portions of the pileus, not affecting its substance more deeply.

Ring cartilaginous, slipping easily up and down in a perfect ring.

Stem squamose, with strong black or red-brown markings.

Flesh and gills unchangeable.

Solitary, bulb regularly globose, not marginate; stem not curved.



A M H Jr

From a Nihilist, imp

THE UNIVERSITY OF CHICAGO PRESS

PLATE XXXIX.

AGARICUS SUBPULVERULENTUS, *Persoon*.

Series LEUCOSPORUS.

Subgenus TRICHOLOMA.

Spec. Char. AGARICUS SUBPULVERULENTUS. Gregarious, often forming large rings. Pileus from an inch to two inches and a half across; at first plano-convex, slightly depressed in the centre, round which it is irregularly tumid, then again contracted; the margin always inflexed, never entirely unrolled; firm, compact, fleshy, hygrophanous, smooth, livid, but with an innately-pruinose whitish glitter like hoar-frost. Flesh white. Gills rounded behind, without a tooth, close, narrow, pallid. Spores ochraceous. Stem solid, equal, smooth, substrate, obsoletely pruinose at the apex, generally curved excentrically. Smell and flavour at first agreeable, afterwards astringent.

AGARICUS subpulverulentus, *Persoon, Fries, Berkeley* (MSS.).

Hab. Forming large rings in bare pastures. Autumn.

With no showy claims to notice, yet intrinsically pretty and interesting, our little Agaric has been less attended to than it deserved. This is the first time that a portrait of it has been taken, and the copyist has so well seconded the efforts of the original artist, that no truer likeness could be produced; as far as the pencil is concerned, however, there is so much to be considered in rendering texture as well as form and colour, that it would in general be far easier to make out funguses from mere technical letter-press, without any drawings whatever, than to name drawings of which no notes exist. It does not appear so to the beginner, who is always crying out for plates, and, to a certain point, needs them; who looks bewildered and grievously disappointed at your stupidity in not instantly naming the portraits from nature he sets before you; but although an Agaric is an Agaric, which it may be is not so easily settled, and we must beg to direct attention to the point of texture in figuring any example we wish to depict. A glutinous shining pileus, a soft smooth kid-leather one, or the scales and shaggy coat of rougher funguses, are good objects to exercise skill, and must be studied with as much care as the painter employs to show whether his fair lady-sitter wears flannel or velvet for her gown. The present Agaric has a pileus of a very peculiar character—glittering as if a delicate film of hoar-frost had formed upon the surface, or a snail left slight traces of its path across it. And we need scarcely say that although words can clearly explain this fact, no possible skill in art could do it. The alternate swellings and depressions of the pileus are caused by its imbibing water more in one portion than another; from its crowded manner of growth it is never regularly developed, and the stem is seldom either perpendicular or truly central. Although nearly allied to so many Agarics with white spores, those of *A. subpulverulentus* are decidedly ochraceous. We have, however, no sufficient reason therefore to remove it from their society. “The colour of the spores is an excellent means of classification, but must not be insisted upon in too much of the spirit of a Martinet,” said our great

English authority ; and among the Milky Agarics several have spores decidedly buff in hue. At first the flavour of *A. subpulverulentus* is agreeable, but it leaves an astringent roughness in the mouth and fauces ; it is a pity that it is not esculent, as it abounds in places and seasons where it would be very acceptable.

The subjects depicted formed a portion of a ring twenty feet at least across. About the same autumnal period *A. dealbatus* appears, in similar habitats, and affecting a circular growth : that has also a tendency to excentric development, and some general resemblance in size and style, but is of less fleshy proportions, has a much smoother pileus, being under the division of *Clitocybe*, a smooth stem, adnate, nearly decurrent, gills, and quite white spores. It is not easy for an inexperienced observer to decide, on cursory examination, whether some full-grown Agarics are to be placed under *Tricholoma* or *Clitocybe*, but it will assist in the research to notice whether fibrillose striæ are found on the stem, terminating at a point below the apex, answering to the contact of the youthful pileus with it ; if so, and corroborating traces exist on the cap, it would be labour lost to look through the division *Clitocybe* for an Agaric we may be pretty sure once possessed the fibrillose veil of those belonging to *Tricholoma*.



A H H

Agaricus personatus . Fries

PLATE XL.

AGARICUS PERSONATUS, *Fries*.*Blue-stemmed Agaric.*

Series LEUCOSPORUS.

Subgenus TRICHOLOMA.

Spec. Char. AGARICUS PERSONATUS. Gregarious, frequently in large rings. Pileus from two to six inches broad, fleshy, firm, heavy, at first convex, compact, obtuse, in age nearly plane; pale bistre, often tinged with violet, smooth and shining as if oiled, but not viscid; margin at first involute, pulverulento-tomentose, at length expanded. Gills rounded, free, not distant, narrow in front, paler than the pileus, turning to a dirty flesh-colour, especially when bruised. Spores white. Flesh very thick, solid, but not tough, mottled, odour like *A. oreades*, but not so agreeable; flavour pleasant, with a slight earthiness, resembling beet-root. Stem from one inch to three inches high, three-quarters of an inch thick, nearly equal above the subbulbous base, firm, solid, mottled within towards the apex with watery spots; clothed with villous fibrillæ, which are of a rich violet-colour above the bulb. Esculent.

AGARICUS personatus, *Fries, Berkeley*.——— bicolor, *Persoon*.*Hab.* In pastures, on downs, &c. Autumnal. Common.

The Blewitt, or more properly Bluette, could scarcely be mistaken, if once examined carefully, for any other Agaric: by its side we place next in order *A. grammopodius*, its near relative, and certainly there is a general resemblance between them, but as certainly great differences; the principal being, that *A. grammopodius* never has the slightest tinge of that peculiar purple which is so distinctive on the stem of the Bluette, and which suggested to Persoon a better name, as we presume to think, than *personatus*,—that is, *bicolor*; unless, by a fanciful application, Fries means the same thing.

In his Lexicon Facciolati says, referring to a letter from Cicero to Atticus as authority, "That man may be called *personatus* (masked, like the classic actors) who shows one face to the public and wears another in private." And so these smooth-faced, creamy-complexioned Agarics, colourless and characterless, with a sort of cloudy ambiguity about them as they appear to us, tiled over each other in vast rings in the grassy pasture, would never be suspected to have a brilliant purple hue belonging to them, unless we looked beneath the surface: there is the test of character, no more disguise; the mask might have been the smooth visage of *A. grammopodius*, but the stem is the stem of the bi-coloured *personatus*; there is no other like it among Agarics, and once detected, the collector may fearlessly eat thereof, that is, provided his palate approve, which we candidly confess our individual organ of taste does not; but this is a case in which no medium opinion exists—people always like or dislike very much the peculiar flavour and odour possessed by our fair-faced friend. Fair-faced the Bluette in perfection is: really a beautiful Agaric. On the downs

especially, where its growth is not so rank as in lowland pastures, it is very symmetrical in form, clean and pure in appearance, while the lovely hue of the stem sets off and adorns the simple elegance of its general garb. If collected in these upland districts, such as the slopes near Lancing and the Devil's Dyke, no better broil is likely to present itself to the lover of mushrooms; and as it succeeds the commonly eaten species, *A. campestris*, it is on that account more valuable. The worthy master of the hostelry at the Dyke was most agreeably surprised, some years ago, at the excellence of the article we recommended to his notice, and which marked all the district with its circles: whether it has come into use there since, we cannot say—we can only hope that so much good food is not still wasted. In the pasture-fields of England our friend abounds in a grosser form, but still so wholesome, that if the country-folk near were Frenchmen or Italians, or indeed anything but English, they might enjoy a savoury meal during a good portion of the chilly autumn days, when a hot dinner or supper is very comfortable. Fried thoroughly, seasoned with onion and omelette herbs, our lowland Bluettes find many admirers.

Dr. Badham had not met with any instance in which this most abundant English Agaric was brought into foreign markets. Persoon has not mentioned it among the '*Champignons Comestibles*;' in fact, on the Continent it seems unknown, we cannot suppose it to be neglected, since the whole tribe is carefully studied,—as profitable for the poor man, or a luxury for the rich. Sowerby says the Bluette is sold for ketchup; it cannot be recommended for that purpose: it yields a great deal of juice, but the flavour is bad: indeed, in wet weather it absorbs so much "skyey influence," that we had better have nothing to say to it in any way; young, and in a dry state, are necessary points in selecting a dish.

The genuine *personatus* is not satisfactorily described by Sowerby. He calls his Agaric *A. violaceus*, which is a red-ochry-spored species, described in our First Series; but he probably had in view another cortinarious Agaric, *A. myrtilinus*, Fries, which grows only on dead leaves, is taller but less solid, hollow-stemmed, more uniformly lilac, and with ochraceous spores. The true *A. personatus* copiously sheds white ones over the grass around.



Agaricus graminopodius, Bulliard

PLATE XLI.

AGARICUS GRAMMOPODIUS, *Persoon*.*Sulcate-stemmed Agaric.*

Series LEUCOSPORUS.

Subgenus CLITOCYBE.

Spec. Char. AGARICUS GRAMMOPODIUS. Pileus from three to five inches across, at first campanulate, inflexed, afterwards somewhat plane, obsolete umbonate, more or less repand, lobed, in age depressed, but the darker umbo always apparent; very smooth, shining, not viscid, hygrophanous; uniform umber, darker only in the centre. Gills adnate, with a tooth on the stem, not decurrent, narrow, extremely close, much forked, dirty white, never tinged with purple. Flesh very thin towards the margin, white, crisp, flavour unpleasant, leaving a disagreeable astringency on the palate. Spores white. Stem smooth, elastic, sulcate, the same colour as the pileus, scored with darker lines; firm, thickened and villous at the base, *never marked with purple*; solid but composed of silky condensed fibre, not cellular. The whole plant never partaking of any other hue than bistre of various degrees of intensity. Solitary, or forming large rings in pastures. Not esculent.

AGARICUS grammopodius, *Bulliard, Fries, Berkeley*.

Hab. Pastures. Autumn.

This is a showy, specious Agaric, of bold, regular, well-developed proportions, and although unassuming in colour, by no means devoid of beauty. It is sufficiently like the Bluette, *A. personatus*, in general configuration and style of growth, to have been selected in mistake for the table by careless observers, who supposed that the peculiar and characteristic colouring of the esculent species had by some means been prevented from displaying itself. As, however, such accidents do not happen, but Bluettes are *always* more or less blue, and *A. grammopodius* *never* is, that one point of difference ought to suffice for the prevention of any culinary use being made of the latter. The colouring principle of many Agarics undoubtedly is variable and fugitive, but in this it neither washes off, nor does it fade away till age decomposes the material altogether; and therefore, although the scored stem of *A. grammopodius* (whence its name) may appear as if it had possessed, or ought to possess, the purple fibrils of its bi-coloured cousin *A. personatus*, we can only say it never does, and any Agaric of the family without that remarkable character had better be condemned, or at least left untasted. Besides this main point, a fair comparison between the portraits we have given of each will ascertain that *A. grammopodius* has much closer, finer gills than *A. personatus*, and that they are not of the same fleshy tint, growing warmer (Titianesquely speaking)

with age, but remaining coldly, and rather dirtily, white to the last. As to the smell and flavour, some persons either are minus the organ or it is perverted, so that we do not recommend that point as one to be depended upon otherwise.

The unpleasantness of *A. grammopodius*, when eaten raw, would cause condemnation from most lingual appendages. Whether it might be improved by cooking, and whether a genuinely deleterious article or not, a bolder adventurer must discover than we can boast of being; for at the same season, in similar habitats, but much more profusely and commonly, we know that a perfectly wholesome Agaric may be obtained—*A. personatus*. Unmask the smooth Quaker-like individual, turn it to the light from amidst its grassy screen—does it reveal the blue stem to the day? then eat profusely; but if this “order of the garter” be not there, let it alone.



A. M. H. del.

Raven & Nichols imp.

Agaricus mammosus, Bolton

PLATE XLII.

AGARICUS MAMMOSUS, *Bolton*.*Umbonate Rose-gilled Agaric.*

Series HYPORHODEUS.

Subgenus CLITOPILUS.

Spec. Char. AGARICUS MAMMOSUS. Pileus from two to three inches broad; at first strongly umbonate, less so when fully expanded, irregular, lobed, often splitting; in extreme youth nearly black, but growing pale in age; umber or greyish-brown; nearly smooth, shining, the epidermis streaked with an adpressed sericeous coating under a lens; the apex always darkest, the umbo cracking so as to give the appearance of scales; the margin compressed and incurved at first, never entirely plane. Gills adnexed, or nearly free, but connected with the stem by a tooth, ventricose, notched and waved, pallid till stained by the rose-coloured spores. Flesh white, crisp, brittle, at first agreeable in flavour, then astringent; smell like *A. Georgii*, but more fungoid. Stem three inches high, half an inch thick, nearly equal, when young swollen at the base, fibrillose, firm, solid, dirty white, stained with the red spores.

AGARICUS mammosus, *Bolton, Berkeley*.*Hab.* On hedge-banks, &c. Spring. Not esculent.

If Fries has described this Agaric at all, we shall recognize it under the head *A. prunuloides* of the 'Epiërisis,' but it is to our English authority, Bolton, we must refer it. One of the earliest of the fungus tribes to greet the searching Mycologist, a claim to attention on that ground alone will not be denied, supposing it to possess no other merit. Our notes mention collecting it on the 9th of April from a sunny hedge-bank, where the *Veronica* had not, as yet, opened its lovely blue "bird's eyes," as happy children call the spring gem, which they never fail to gather with delight, nor to grieve over as the delicate blossoms drop off in the act. At the same vernal period, deep in the moss of the sheltered lawn, small specimens of *A. Georgii*, the genuine *Prunulus*, ventured to peep forth without waiting for leave from St. George; but in the favourite valley where that excellent Agaric abounds in due season, prudence prevailed, and we could not find one. The first spring flowers are always greeted with affection, however insignificant they may be in themselves. It is a source of pleasure to see the barren spot once more decorated with that humble ornament, *Draba verna*, while even a Dead Nettle is hailed as an old friend. Much more strongly, then, must the first Agaric appeal to the heart of the devoted Mycologist, simple and valueless as it may be in itself; but yet—surely we are needlessly apologizing—*A. mammosus*, although we cannot use it in any way for the table (we did once make, ketchup fashion, some horrible stuff from it, tasting like the rankest radishes), is neither dowdy nor insignificant; every eye, guided by a tolerably well-developed organ of colour, finds the contrast of brown and pink agreeable. Spores seldom play a pro-

minent part in embellishing Agarics. Sometimes, when white, they give a mouldy look to the pileus over which they have ejected themselves; sometimes they give a snuffy appearance to a set of clean yellow gills, or disfigure bright purple ones by this incongruous mixture; or they change lovely pink to deep purple-black, as in the common mushroom, warning us that youthful purity has passed away with youthful blushes, and that sordid ketchup must be thought of instead of elegant stews; but in the present case, the pallid vermillion, by courtesy called rose-colour, greatly improves the garb of the quietly clad Agaric, painting the dingy white stem with a pleasant contrast of hue, and rendering the gills an agreeable relief to the sober brown pileus.

A. mammosus has a slight scent of meal; the peculiarly disagreeable odour, however, which is understood by fungoid, predominates, not that which the epicure recognizes in his favourite *Prunulus*. Both are spring productions, but they are extremely unlike in other characteristics, so that to point out the differences between them would be an affront to our latest convert, or our most careless reader.

Among the pink-spored Agarics more nearly allied to our present subject, *A. fertilis* is larger, and the pileus is buff or yellowish; *A. pluteus* looks like the conical thatched roof of an old summer-house, and has free gills; *A. rhodopolius* has a hollow stem, sometimes stringy within or curiously partitioned. There are not many English Agarics possessing rose spores, and some of the remaining number are much smaller, others grey-blue, and most of them autumnal. The very peculiar cracked umbo of *A. mammosus* is a distinction from its congeners, nearly sufficient to decide any doubts of its identity.



PLATE XLIII.

AGARICUS LOBATUS, *Sowerby*.

Series LEUCOSPORUS.

Subgenus CLITOCYBE.

Subdivision DASYPHYLLI.

Spec. Char. AGARICUS LOBATUS. Pileus from two to four inches across, at first convex, at length infundibuliform, sub-repand, lobed and waved, the margin involute, thin and brittle; testaceous, with rufescent stains; paler in age, smooth, shining, not viscid. Flesh pallid. Gills decurrent, simple, at first much paler than the pileus, afterwards growing darker, and nearly of a similar hue. Spores white. Stem two inches high, four lines thick, attenuated upwards, yellowish rufescent-brown, stuffed, hollow in age, often curved when sub-cæspitose. Odour acidulous; flavour bitter. Ranked by Clusius among the pernicious species.

AGARICUS lobatus, *Sowerby*.

———— inersus, *var.* lobatus, *Fries*.

———— fimbriatus, *var.* lobatus, *Berkeley* (*Flora vol.*).

Hab. On a hedge-bank, near Croydon. Generally under fir-trees.

The common form of *A. inersus* of Fries is smaller and more compact than Sowerby's *A. lobatus*; he himself, however, considered them as mere varieties of the same species, which is placed by Persoon under *A. flaecidus*; the minor specimens met with in fir-plantations are generally gregarious, and less elastic and firm than the major, answering to *A. infundibuliformis* of Bulliard, and also of Schæffer, who speaks of yet another and rarer example, at first gibbous and destitute of an umbo. According to Fries, the primary form of *A. inersus* is regular and solitary; but all those Agarics which assume a deeply infundibuliform shape, when fully expanded or repanded as the case may be, are seldom symmetrical, but bend on one side as their position is affected by circumstances. The example given grew on a hedge-bank at Shirley Common, near Croydon, propped up, in aid of its relatively weak slender stem, by grass and dead sticks; we have never found it since; it is certainly by no means a common fungus, and we cannot help thinking has quite as good a right to be established an independent species as many others so distinguished.

Why yellow as a colour, and bitter as a flavour, should be as frequently connected as they are, would puzzle much better chemists than ourselves. Most yellow funguses are bitter; the present case may not appear to be to the point, but there is a decidedly yellow hue beneath the more sober rufescent-brown, which is its nearly uniform livery. The bitter principle is absent in the more common genuine form of *A. inersus*, which appears a strong evidence that *A. lobatus* is not a mere variety of that, certainly variable, Agaric; for though shape, size, and colour may be rated as of small importance, chemical properties are not likely to be sportive in their development. It was formerly supposed,—indeed it is still held as an article of faith in

old-fashioned districts,—that everything yellow was good for that yellow misery, jaundice; perhaps on the modern homœopathic principle of “like curing like,” but also, doubtless, because so many wholesome stomachic bitters, useful in such cases, are yellow; rhubarb for instance.

All the family to which *A. lobatus* belongs, are more or less pleasing, some strikingly so, like elegant wine-glasses with the lip turned over; agreeable from purity of colour and texture, many are valuable esculents. We know of no use for *A. lobatus*, and as it is so seldom met with, we may be thankful that its utility is worse than doubtful, for if desirable it might long be sought in vain. Those things which a kind Providence has made needful, are generally plentiful—generally such as by industrious skill we can increase and multiply—generally such as reward our labour by improved succulence and nutritive value, and not, like our gipsy Agarics, untameable.



Reese & Nichols, 1902

A. M. H. 1902

Phlebia merismoides var. *Aurantia* *Reese*

PLATE XLIV.

PHLEBIA MERISMOIDES, *Fries*,*var. AURANTIA, Berkeley, MSS.*

Gen. Char. Hymenium homogeneous, amphigenous, waxy, soft, smooth, from the first corrugated, wrinkles near together, interrupted, covered everywhere on the surface with very distinct perfect asci. Resupinate, effused, when moist subgelatinous, ceraceous; when dry cartilaginous.

Spec. Char. PHLEBIA MERISMOIDES. Effused, smooth, flesh-coloured, turning livid, the circumference rayed, orange-colour; folds nearly straight when developed on a level surface, but adapting themselves to the shape of the mosses or other irregular substances incrusting by their growth. The under surface is villous and white when the margins curl upward in drying.

Var. *aurantia*; rich orange-scarlet, the central portions becoming lake-red and purplish in maturity.

PHLEBIA merismoides, *Fries*.

merismoides, *var. aurantia, Berkeley MSS.*

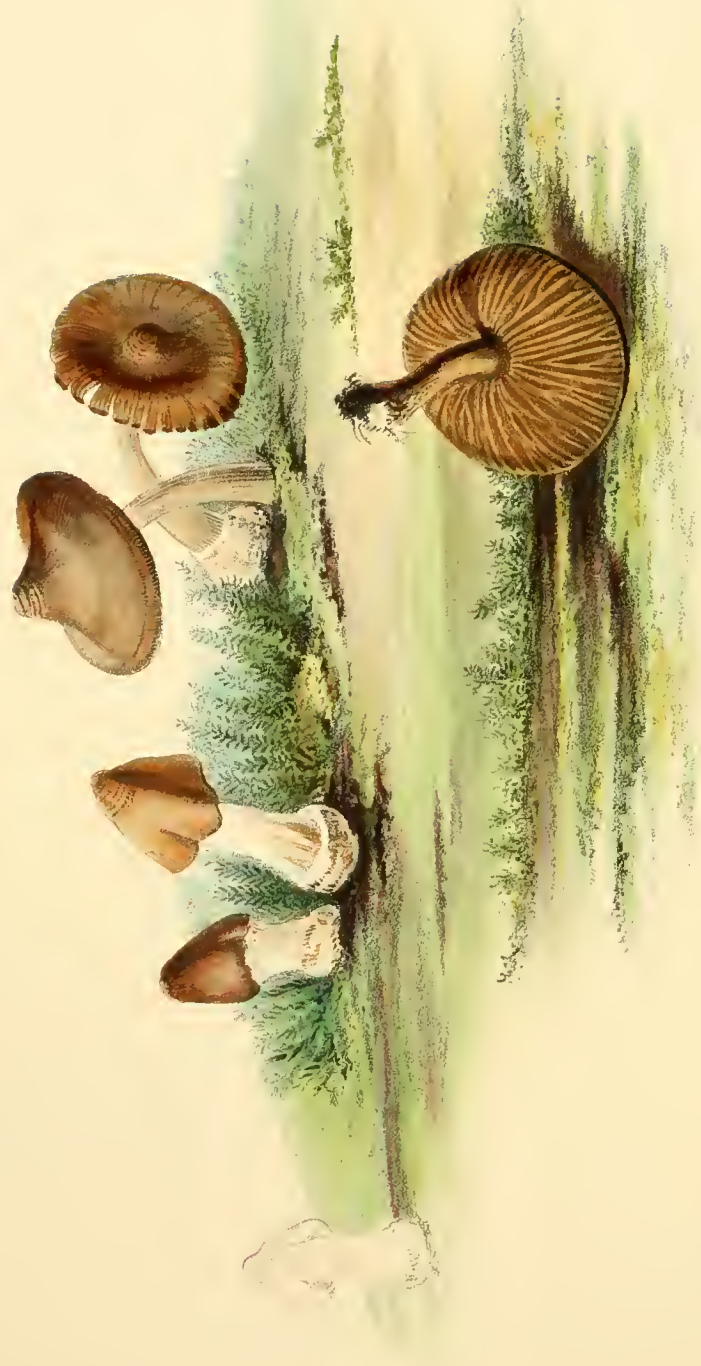
Hab. On the trunk of a bigaroon cherry-tree, bursting through the bark, and spreading diffusely over and incrusting moss, a species of *Hypnum*. Hayes Rectory; autumn.

Those who plant standard cherry-trees furnish doubtless most delectable banquets to the blackbirds, jackdaws, and others of the feathered tribes; but if dessert for the master be an idea in the mind, disappointment is sure to ensue, unless, indeed, so many trees are provided that the birds cannot devour all their produce. The bigaroon which fostered this lovely *Phlebia* had constantly been plundered of its fruit by daws while yet green, so that when a tall wild-rose briar, growing from the base of the trunk, attained the same height as the tree itself, about twenty-five feet, numerous lax elegant stems finding support among the strong cherry-boughs, it was suffered to remain, the shining green leaves and profuse snowy blossoms, besides the unusual proportions it had attained, rendering it a very lively screen to that portion of the grounds: but the nursling, in its amazing vigour, robbed the guardian which sustained it in such glory for a briar: it is as luxuriant as ever,—the bigaroon defunct for want of nourishment, and, piece by piece, every gale strews the garden with its withered branches. The little life remaining afforded a pabulum fit for the production of the beautiful *Phlebia aurantia*. The first autumn that it appeared, the entire trunk, measuring a foot and a half in diameter, was permeated beneath the outer bark with the white mycelium of this fungus; scarlet spots erupted through every weak point; and where the forking of the limbs gave a habitation to bright green moss, the dazzling orange *Phlebia* seized upon its shoots, spreading

in irregular profusion and forming papillate processes in consequence. By "amphigenous," Fries does not mean that the under surface of the pileus bears asci as well as the upper, but that these processes, and the corrugations of the whole superior surface, are fruitful all over. The asci are visible to the naked eye as a glittering bloom, like that of fruit. The second season, 1851, a portion of the decaying tree was again enlivened with many a scarlet pileus, but not to anything like the same extent. The previous crop had quite exhausted the nutriment fit for it, where it had been, and the soft black substance left behind was covered with a grey film, as it appeared at a little distance,—in reality the lovely cups of *Peziza cinerea* in thousands. The upper branches of our devoted bigaroon were nodose with shapeless lumps of *Polyporus igniarius*. And all this was the briar's doing, which is at present holding its head higher than ever, unconscious that the support it has so shamelessly abused must soon crumble away, leaving the long trails it glories in, prone in the dust: unlike the ivy close by, which sustains,

"And with her arms from falling keeps,"

the grey limbs over which she has formed dense green bowers, covered with the blossoms which afford food to so many insects when little beside is presented to them.



A. M. H. del.

Engraved by F. Reeve

Agaricus Reedii, Berkeley

PLATE XLV.

AGARICUS REEDII, *Berkeley, MSS.*Series CORTINARIA.¹Subgenus HYGROCYBE.²Subdivision TENUIORES.³

Spec. Char. AGARICUS REEDII. Pileus at first conic, lobed, when fully expanded one inch across, strongly umbonate, at length depressed round the umbo; smooth, shining brown, not becoming pallid, the apex with areolate scales; margin splitting. Stem from one-and-a-half to two inches high, white, solid, fibrillose, striate, bulbous; veil fibrillose, disappearing. Gills broad, ventricose, ascending, free, though in young specimens appearing aduate from the compression of the pileus, pallid, then cinnamon from the reddish-ochre spores. Flesh pallid, tasteless, scentless.

AGARICUS Reedii, *Berkeley, MSS.*

Hab. Among moss and decaying beech-mast under very aged trees. Hayes Common. End of May.

So closely do these pretty little specimens of the family *Cortinaria* assimilate in colour, and the youthful ones even in shape, with the beech-mast, that as the brown conic pileus, with its scaly umbo, peeps from among the bright green moss, it is scarcely to be discerned by any but truly skilful fungus-hunting eyes from the debris of husks surrounding the spot: twice we have found it on the same site, about the end of May. Although nearly allied to *A. leucopus* and *A. Krombolzii*, it differs in essential points from both; Mr. Berkeley therefore, considering it a new species, has named it after the sister whose drawings, signed F. R., so liberally grace Mrs. Hussey's First Series of British Mycology. Recently Miss F. Reed has joined a party of her family going to reside at Valparaiso, and if her skill is employed in depicting novel objects there, the results cannot fail to be highly interesting to students in this branch of botany, which few travellers either know or care anything about. Whether South America generally is rich in the fungus tribes can scarcely be said to have been inquired into; but in Terra del Fuego, with its sombre forests and dripping skies, one species is so abundant as to furnish the natives with a valuable supply of food.

¹ Spores red-ochre.

² Pileus smooth or covered only with superficial fibrils, not viscous, but when in full vigour moist, when dry losing its colour. Flesh very thin, splitting, the disc seldom compact. Stem slightly rigid, not peronate. Veil simple, fibrillose.

³ Pileus sub-membranaceous, from conic becoming expanded, umbonate, umbo generally acute at first, rarely obtuse, and disappearing, which is not the case with the former. Stem sub-equal. The thinness of the pileus is only relative to its width.

“There is one vegetable production deserving notice from its importance as an article of food to the Fuegians. It is a globular bright-yellow fungus, which grows in vast numbers on the beech-trees. When young it is elastic and turgid, with a smooth surface; but when mature it shrinks, becomes tougher, and has its entire surface deeply pitted or honeycombed. This fungus belongs to a new and curious genus.¹ I found a second species on another species of beech in Chili; and Dr. Hooker informs me, that just lately a third species has been discovered on a third species of beech in Van Diemen’s Land. How singular is this relationship between parasitical fungi and the trees on which they grow in distant parts of the world! In Terra del Fuego the fungus, in its tough and mature state, is collected in large quantities by the women and children, and is eaten uncooked. It has a mucilaginous, slightly sweet taste, with a faint smell, like that of a mushroom: with the exception of a few berries, chiefly of a dwarf arbutus, the natives eat no vegetable food besides this fungus. In New Zealand, before the introduction of the potato, the roots of the fern were largely consumed. At the present time, I believe Terra del Fuego is the only country in the world where a cryptogamic plant affords a staple article of food.”—*Darwin’s Journal*, 2nd edit. p. 236.

Giving this interesting extract just as it stands, it appears to us that the great trade in Italy and France in fresh and dried funguses of various kinds is as much a staple use of *Cryptogamia* as that of the Fuegians, who eat them themselves instead of selling them, and who probably would be glad to exchange these natural productions for animal food if they could. It seems worth consideration, whether a trade in dried *Cyttarias* might not be opened, since they are so extremely abundant, and Morels, &c., fetch such great prices. In a raw state the flavour does not appear to be strong, but in many cases cooking is necessary to develope it.

¹ Described from my specimens and notes by the Rev. M. J. Berkeley, in the Linnean Transactions (vol. xix. p. 37), under the name *Cyttaria Darwinii*: the Chilian species is *C. Berteroii*. This genus is allied to *Bulgaria*.



A. M. H. del.

F. Reeve imp.

Agaricus nictitans Bulliard

PLATE XLVI.

AGARICUS NICTITANS, *Bulliard*.

Series LEUCOSPORUS.

Subgenus TRICHOLOMA.

Spec. Char. AGARICUS NICTITANS. Pileus fleshy; at first convex, then plane, obtuse, smooth, but innately virgate; slightly viscid. Gills at first rounded, free, at length irregularly emarginate, somewhat waved and notched, yellow, marked with red stains. Spores white. Flesh white. Stem stuffed, dry, elastic, unequal, slightly ventricose, squamulose. Smell sweet; taste slightly of mushrooms, not bitter.

AGARICUS nictitans, *Bulliard, Fries*.

Hab. Rare; in sunny woodlands. Autumnal.

Agaricus nictitans was found growing on an open plot of loose peaty soil at Hayes. Dr. Badham had previously discovered it in Suffolk; and these are, as we believe, the only two occasions on which it has been noticed in England. Fries calls it "rare," speaking Europeanly. It is a very elegant species; but the discoloration of the delicate yellow gills, which become reddened by bruising, spoils its appearance after having been carelessly handled. Although somewhat viscid in damp weather, the pileus becomes perfectly dry, and rather harsh than smooth to the touch when it has been brought in for a day.

The autumn of 1851 was unfavourable to the mycological tribes, and several species, both of *Boletus* and *Agaric*, generally abundant in particular spots, and which for that very reason had had their portraits deferred till more rare subjects were attended to, never appeared at all; while at this same period, when the neighbourhood seemed quite denuded of our friends, the fragile delicate stranger ventured forth. It was an extremely pleasant nook certainly, which gave shelter to numerous specimens of *A. nictitans*: they were scattered sporadically, not in tufts or rings.

The spring of 1852 is, perhaps, almost without parallel. North-east winds and white frosts are injurious to all vegetable, and would they were only so to vegetable, life; to the fugitive tribes of soft-fleshed funguses they are inimical to such a degree, that perhaps months afterwards the delicate mycelium or spawn may be discovered to have perished beneath the parching influence of

"The sun by day and the moon by night,"

opportunity never having been allowed for an effort at self-assertion, much less display. We have seen no *Morels*; and although the rings of former crops are the greenest of the seanty herbage, we scarcely hope to greet, among the blades of grass, our palatable *Mousseron*. *Mousseron*! the blackbirds and

thrushes have scratched up all the moss, in vain efforts to detect their natural food beneath its shelter. If *Peziza acetabulum* should come at all this year, and we are anxiously waiting for it, it will be grievously stunted of its proportions. Coleridge wrote,

“ 'Tis a month before the month of May,
And Spring comes smiling up this way ;”

but, alas, March will not give up its prerogative to April ; so that instead of being “ a month before,” we are at least a month behind.



A M H del

Vincent Brooks, lith

Agaricus prunulus, Fries.

PLATE XLVII.

AGARICUS PRUNULUS, *Fries*.*Autumnal Prunulus.*

Series HYPORHODEUS.

Subgenus CLITOPILUS.

Spec. Char. AGARICUS PRUNULUS. Pileus from an inch and a half to two inches and a half across, pruinose, dry, pallid mouse-colour, firm, fleshy, compact, at first regularly convex or broadly umbonate, afterwards slightly depressed, seldom repand; margin at first inrolled, never thoroughly expanded. Gills very regular, distant, somewhat decurrent, and appearing still more so from the diffusion of the stem into the pileus; dusky white, but turning colour by the ripening of the rose-coloured spores. Stem nearly equal or slightly ventricose, striate, solid. Flesh white, odour agreeable of flour, like *A. Georgii*; esculent.

AGARICUS Prunulus, *Fries*.

———— Sowerbei, *Krombholz*.

Hab. At the same autumnal period as *A. orcellus*, under trees in woodland sites; seldom solitary, grouped in twos and threes—not in rings.

Insignificant as this simple quiet Agaric may appear, it is in reality extremely interesting; being nearly allied to the genuine *A. orcellus* of authors, and yet differing from it, a confusion has arisen among the synonyms, which it is a pleasure to disentangle only to be appreciated by those whose patient tidy fingers have released a complicated skein of thread from bewildering involvement. The drawing, numbered 143, *A. pallidus* of Sowerby, which Krombholz supposes to be the same as this nearly-related Agaric, is not so, but is the true *A. orcellus*; it is, therefore, an error on his part to call the Agaric depicted in his plate "Sowerbei;" but the portrait, save in colour, is a correct one of our present subject.

Vittadini could not have seen the 'Epicrisis,' when he states that Fries identifies *A. Prunulus* with the *Orcellus* proper; for in the subdivision *Orcelli* of the Swedish author, *A. Prunulus* stands first, *A. orcellus* second, as perfectly distinct species. Growing at the same season, late summer and autumn, when heavy storms and sunshine alternate and soften the soil, these kindred Agarics may often be found near neighbours to each other, and a mistake between them will be of slight importance to any but the student, as both are esculent. *Agaricus orcellus* often grows in large rings, which *A. Prunulus* does not, as far as our observation extends. The latter is much more compact, hard, and firm; and its gills are regular, not branched, and running down like a *Cantharellus*, which is the case with those of the lobed, repand forms of *A. orcellus*. The peculiar scent of cucumber is wanting to *A. Prunulus*, which resembles

more in odour the spring *Prunulus* (*A. Georgii*). Indeed, before the distinctive spores ripen, small young specimens of *A. Prunulus* and *A. Georgii*, if we could (which we never shall be able to do) place them side by side, might puzzle even the learned. We entertain no doubt that this, and not *A. orcellus*, is the autumnal *Prunulus* of Italy. It is certain *A. orcellus* in no way resembles *A. Georgii*, the "Prugnuolo;" its flexible thin pileus, and short, often almost obliterated stem, with a tendency always to excentricity, beside the pink tinge of the decurrent gills, render it almost as distinct from the solid rotund spring mushroom, as were the mouse and the bird of the fable, while between them stands the bat, *A. Prunulus*, with characters common to both. In the compact greyish pileus, hidden among mossy grasses, we have the type of a youthful *A. Georgii*, while, when aged and reddened beneath, a similitude to the most regular forms of *A. orcellus* obtains. As an esculent, *A. Prunulus* is very good; but it must not be placed in comparison with the prince of Agarics, albeit the Italians unpolitely style that "Grumato bastardo."

When we state that *A. orcellus* grows in rings, dense masses destroying the herbage, as is the case with many Agarics, is not intended, but merely that a circle, often twenty feet in diameter, may be traced, each pileus, perhaps, being a foot or more distant from its neighbours; this circle extends itself outwardly year by year in the same spot, always under tall trees where woodlands have been partially cleared, not among underwood, the closeness of which is inimical to most funguses, unless to those which grow on decaying timber. *A. Prunulus* is very uncommon in England: we have only found a very scanty growth of it twice.



PLATE XLVIII.

AGARICUS FUSIPES, *Bulliard*.*Spindle-stemmed Agaric.*

Series LEUCOSPORUS.

Subgenus COLLYBIA.

Subdivision STRIÉPODES.¹

Spec. Char. AGARICUS FUSIPES. Densely tufted. Pileus from one to three inches or more broad, but only a few members of the group attaining full proportions; fleshy, loose, tough; when young, hemispherical or broadly umbonate; cracked, sometimes tessellated, smooth, slightly viscid in wet weather, dull vinous-brown or buffish, marked with dark patches as if burned; margin incurved, then expanded, acute; flesh white. Gills pale unber, free, or only apparently adnate from the form of the pileus; broad, distant, flexuous, serrated, connected by veins, with a watery appearance, though really dry, like a piece of half-dry parchment. Spores white. Stem from two to six inches long, from half an inch to an inch thick, ventricose, fusiform, irregularly compressed, above paler than the pileus, below dark red-brown; external coat cartilaginous, striate longitudinally, not truly though apparently fibrillose, often split longitudinally with transverse cracks, these cracks extending only through the cartilaginous coat; stuffed with shining, crisped, white fibre; in age hollow. Flavour and smell of Champignons, esculent.

AGARICUS fusipes, *Bulliard, Fries, Berkeley.*

———— crassipes, *Schaffer, Sowerby, Withering.*

Hab. In dense fascicles, at the roots of oak-trees, after electric rains, during the whole summer.

If carefully dried, *A. fusipes* can be kept for some time, to enrich gravies, etc. It is remarkably free from insect larvæ, the texture being apparently too tough to please them, and for this reason it cannot be recommended as a stew, notwithstanding the agreeableness of the flavour, as it is not an easily digested substance: small compact individuals soften completely in vinegar, and may be recommended as a pickle to those who like such condiments. At some periods bushels of this Agaric might be collected within a small circuit at Hayes Common; and near Wymondham, in Norfolk, a line of trees were each surrounded by tufts of the not very ornamental brown fungus: it does not yield good ketchup, which is a pity, since it abounds when mushrooms are not to be had. The same sites produce crops of it year after year. When heavy summer rains have penetrated through the foliage, it may generally be found; but never at the

¹ Stem stout, sulcate, fibrilloso-striate, hollow or stuffed with spongy pith.

roots of any trees except oak ; dense tufts being squeezed tightly up between their gnarls and the soil, so that only the strongest and most vigorous heads obtain room for the expansion of their hats, which are flapped and bent in the struggle for place and precedence. The fibre which stuffs the stems is very beautiful, like spun-glass or floss-silk, when split longitudinally. We have counted nearly fifty Agarics composing one group, compressed together, and all but confluent into one stem at the base ; of course many of these were very small. In the growth of most plants, if the fully-developed members of a family were removed, the smaller would succeed to their place ; but in Agarics it is not so—all appear to be the consequence of one start in production, and those stunted at the beginning remain so after the strong ones have been removed. When favourable circumstances bring forward a second tuft from the original base, none of the prior crop help to compose it—they disappear entirely, to be entirely replaced after a pause.



R. del

Agaricus purus, Pers.

: Reeve, myx

Order HYMENOMYCETES.

Tribe *Pileati*.

PLATE XLIX.

AGARICUS PURUS.

Radish-scented Agaric.

Subgenus MYCENA.

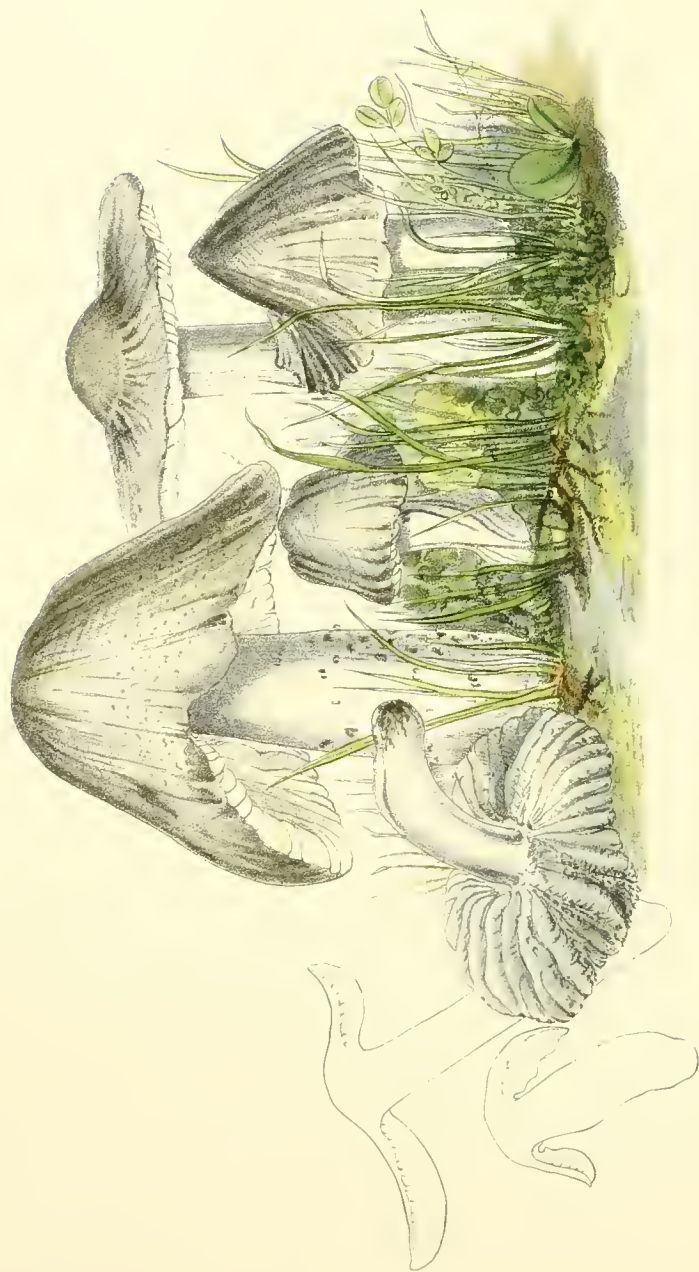
Spec. Char. AGARICUS PURUS. Strong-scented; pileus rather fleshy, campanulate, at length expanded, obtuse, umbonate, smooth, turning pale; margin striate. Stem rigid, even, nearly naked, villous at the base. Gills widely sinuated, adnexed, very broad, connected by veins, paler than the pileus.

AGARICUS purus, *Persoon, Fries, Berkeley.*

———— roseus, *Batsch.*

———— collinus, *Larber.*

This species is extremely common in woods and shady pastures, and attracts admiration by its elegant form and beautiful colour. The odour however is strong and disagreeable, like that of radishes; and were its qualities better, it seldom occurs in such masses as to make so small a species worth notice. Its hot, pungent, disagreeable smell does not indicate any desirable culinary properties. There is no species with which it can easily be confounded, except perhaps *A. pelianthinus*, and that is distinguishable at once by the dark margin of the gills, an effect produced by short, close-packed, purple-brown hairs. It is rather tough as regards substance, and assumes an infinite variety of tints, of which, however, rose and purple are the most prevalent. When dry it loses much of its beauty. In this state it is represented in the three middle figures.



M. T. 2. 2.

Hypholoma rufum

Order HYMENOMYCETES.

Tribe *Pileati*.

PLATE L.

HYGROPHORUS OVINUS, *Fries*.

Sheep Mushroom.

Spec. Char. HYGROPHORUS OVINUS. Pileus one to two inches or more across, thin, fleshy, at first conical, then convex, and at length expanded, gibbous, rather sticky or moist, squamulose, often cracked; pale brown. Stem one and a half to two inches high, one-third to half an inch thick, smooth, shining, somewhat incrassated above and below, stuffed, at length hollow, paler than the pileus. Gills at first white, then pale ash-coloured, arcuato-decurrent, connected by strong veins; edge thin.

AGARICUS ovinus, *Bulliard, Fries*. A. obscurus, β , *Albertini and Schweinitz*.

This species was confused by Bulliard with *Agaricus cuneifolius*, which is much more delicate and brittle, and far more common. The obtuse, gibbous, squamulose pileus at once distinguishes it, not to mention the difference of texture. There can be little doubt that it may be eaten with impunity, but it is not sufficiently common to make any experiments interesting, nor does the evidence afforded by other *Hygrophori* give much hope of its being valuable. Its chief attraction arises from the distinctness of its characters; and as it occasionally occurs in open grassy pastures, with other more elegant species, and has never been figured in any British work, it has been thought worthy of a place in this collection.

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